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2000 ANNUAL GROUND WATER SAMPLING REPORT LIVINGSTON RAIL YARD LIVINGSTON, MONTANA

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2000 ANNUAL GROUND WATER SAMPLING REPORT LIVINGSTON RAIL YARD LIVINGSTON, MONTANA

Submitted to:

**Montana Department of Environmental Quality
Superfund Program
P.O. Box 200901
Helena, Montana 59620-0901**

Submitted by:

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Submittal Date:

April 30, 2001

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1.0 EXECUTIVE SUMMARY

This report presents the results of the November 1999, May 2000, and November 2000 ground water sampling events at the Livingston Rail Yard (LRY) in Livingston, Montana. Long-term locomotive fueling operations at the LRY resulted in a plume of free and residual diesel fuel near the water table of the underlying aquifer beneath a portion of the LRY. Locomotive maintenance and waste-water handling operations also resulted in the presence of chlorinated volatile organic compounds (VOCs) in soils at specific areas around the LRY. In addition, a ground water plume containing dissolved chlorinated VOCs is located beneath and downgradient of the site.

All ground water sampling is conducted according to the Interim Remedial Measures Work Plan (IRMWP), Envirocon, April 1989 and adhering to the ground water sampling schedule approved by the MDEQ in February 1986. The November 1999 semiannual sampling round included sampling 14 monitoring wells; 11 of the samples were analyzed for volatile organic compounds (VOCs) and 6 were analyzed for natural attenuation parameters (NAPs). The May 2000 annual sampling event included sampling 25 monitoring wells, with all 25 samples analyzed for VOCs. The November 2000 semiannual sampling round included sampling 9 monitoring wells, with all 9 samples analyzed for VOCs. With the approval of the MDEQ, NAP analyses were discontinued at the end of 1999 because adequate NAP data has been collected to evaluate natural attenuation.

November 1999, May 2000, and November 2000 ground water samples contained dissolved chlorinated-VOC concentrations that continued the long-term declines observed during the past eleven years of ground water monitoring. In general, VOC concentrations in the ground water have declined more than 90 percent since May 1989.

Of the wells measured for petroleum free product, two-thirds contained less than one-tenth-foot total apparent product thickness. Assuming that apparent product thickness is two to four times the actual thickness, this indicates that the majority of the petroleum free-product plume is less than one inch thick.

Analyses for NAPs include both reactants and products of biodegradation. NAP analyses indicate that petroleum-degrading microbes are utilizing a variety of electron acceptors, including oxygen, NO_3 , and Fe^{+3} , to biodegrade hydrocarbons beneath the petroleum free-product plume.

2.0 INTRODUCTION

This report is submitted to the Montana Department of Environmental Quality (MDEQ) by The Burlington Northern and Santa Fe Railway Company (BNSF). It presents the results of ground water samples and petroleum free-product thickness measurements collected during the November 1999 semiannual, May 2000 annual, and November 2000 semiannual sampling rounds at the LRY, Livingston Montana.

The LRY is located in the northeast part of the city of Livingston, Montana, as shown on Figure 1.0. It was constructed in 1883 by the Northern Pacific Railroad (NPRR) and, except for an 18-month period during 1986 and 1987, has operated continuously since that time. Since the introduction of diesel locomotives in the 1940's, leaks and spills during diesel fuel handling have resulted in a plume of free and residual diesel fuel overlying the water table of the underlying aquifer. Locomotive maintenance and waste-water handling has also resulted in the presence of chlorinated VOCs in soils at specific areas around the rail yard. In several places these chlorinated VOCs reached the underlying aquifer and created a plume of dissolved chlorinated VOCs in the ground water beneath and downgradient of the site.

The Burlington Northern Railroad (BNRR), the successor to NPRR and predecessor to BNSF, began environmental investigations at the LRY in October 1985. Since 1989, the LRY has been investigated and remediated under a Modified Partial Consent Decree (MPCD) between BNRR (later BNSF) and the MDEQ. The MPCD, signed by Charles C. Lovell, U.S. District Judge on April 27, 1990, specifies the process by which the investigation and remediation of environmental conditions at the LRY will proceed. Regularly scheduled ground water monitoring has continued since May 1989.

The LRY is underlain by an alluvial aquifer composed of coarse-grained sand and gravel. This aquifer is herein referred to as the Livingston aquifer. Beneath most of the LRY, the aquifer water table is 15 to 25 feet below ground surface. The saturated thickness of the aquifer ranges from 10 feet to more than 50 feet.

Section 3.0 of this report presents the number of samples collected, sample dates, and analytical methods used for the November 1999, May 2000, and November 2000 sampling events. Section 4.0 presents the analytical results of these ground water samples. Results are presented on tables showing the November 1999, May 2000, and November 2000 sampling events and on maps showing the lateral extent of dissolved chlorinated VOCs based on the May 2000 analytical results. The long-term declines in VOC concentrations are illustrated on graphs showing chlorinated VOC concentrations at specific wells during all ground water sampling events since May 1989.

3.0 ANNUAL & SEMI-ANNUAL GROUND WATER SAMPLING EVENTS

The November 1999, May 2000, and November 2000 sampling rounds were conducted in accordance with the ground water sampling schedule approved by MDEQ in February 1996 and presented as Table 1.0. That sampling schedule specifies sampling twelve monitoring wells during semiannual sampling events (November) and thirty monitoring and private wells during annual sampling events (May). Two wells (MW-8 and the Rainbow Motel well) were removed from the schedule by a faxed communication on November 6, 2000, reducing the February 1996 schedule to 28 wells. Note that not all wells are available for sampling during each sampling event (dry well, sampling pump removed during product recovery tests, inoperable dedicated submersible pumps, etc.) Table 1.1 lists the November 1999, May 2000, and November 2000 sample numbers, sample locations, sample dates, and sample analyses.

The locations of all November 1999, May 2000, and November 2000 sampling points are shown on Figure 1.0. Tables 2.0, 3.0, and 4.0 summarize analytical results for tetrachloroethene (PCE); trichloroethene (TCE); and cis-1,2-dichloroethene (DCE), respectively. Laboratory analytical results are presented in Appendix A. A data validation report is included as Appendix B. Details of each sampling event are presented below.

3.1 November 1999 Semiannual Ground Water Sampling Event

The November 1999 semiannual sampling round was conducted from November 8 through November 11, 1999. Fourteen monitoring wells were sampled as part of this sampling event: 11 scheduled wells and 3 non-scheduled wells. One of the 12 scheduled wells (L87-5) could not be sampled because it was dry.

Eleven of the samples were analyzed for volatile organic compounds (VOCs) by EPA Method 601. Three non-scheduled wells and three of the scheduled wells were also sampled for natural attenuation parameters (NAPs). NAP analyses are not required, but were conducted to evaluate the extent of natural biodegradation of diesel fuel occurring in the aquifer beneath the free- and residual-product plume. One field duplicate was also submitted to the laboratory. All samples were analyzed at Energy Laboratories, Inc. in Billings, Montana.

3.2 May 2000 Annual Ground Water Sampling Event

The May 2000 annual ground water sampling event was conducted May 16 through 25, 2000. During this sampling round, 25 monitoring wells were sampled (Tables 1.0 & 1.1). Three of the scheduled wells were not sampled: monitoring well L87-5 was dry, well L-87-8 was being used for product recovery (the dedicated bladder pump had been removed), and 92-4 was inadvertently skipped.

Thirty samples were analyzed as part of the May 2000 sample event: twenty-five were primary samples, four were field duplicates, and one was a trip blank. Twenty-four of the primary samples were analyzed for VOCs by EPA Method 601, and one was analyzed for VOCs by EPA Method 524.2. No samples were analyzed for NAPs. All samples were analyzed at Energy Laboratories, Inc. in Billings, Montana.

3.3 November 2000 Semiannual Ground Water Sampling Event

The November 2000 semiannual sampling round was conducted November 14 through 16, 2000. Nine monitoring wells were sampled as part of this round. Three of the

scheduled wells were not sampled: monitoring well L87-5 was still dry, the dedicated bladder pump had not been replaced in well L-87-8, and 90-3 was also dry.

All nine of the samples were analyzed for VOCs by EPA Method 601. No samples were analyzed for NAPs. One field duplicate and one trip blank were also submitted to the laboratory. All samples were analyzed at Energy Laboratories, Inc. in Billings, Montana.

4.0 SAMPLE RESULTS AND DISCUSSION

This section presents the results of samples collected during the November 1999, May 2000, and November 2000 sampling events. Analytical results for PCE, TCE, cis-DCE, and other volatile organic compounds are presented on Tables 2.0 through 5.0, respectively. Results from the May sampling event are also presented on Figures 2.0 through 4.0, which show the distribution of dissolved PCE, TCE, and cis-DCE concentrations. November 1999 natural attenuation parameter analytical results are summarized on Table 6.0.

The petroleum free-product plume thickness was measured in monitoring and observation wells during the sampling events. Thickness measurements represent the "apparent" free-product thickness, as opposed to the actual thickness. The apparent thickness of petroleum free-product is believed to be approximately two to four times greater than the actual free-product thickness in the aquifer. Apparent thickness measurements are listed on Table 7.0.

4.1 Ground Water VOC Sample Results

November 1999, May 2000, and November 2000 ground water samples contained dissolved chlorinated-VOC concentrations consistent with the long-term declines observed during the past eleven years of ground water monitoring. These concentration declines are due to the limited total mass of chlorinated VOCs originally present at the LRY, and also to VOC removal during source control activities instituted on the LRY during the remedial investigation, the feasibility study, and since. Source control activities were described in the Final Draft Soil and Ground Water Feasibility Study Report (Envirocon, 1998). Additional source soils were removed from beneath the former vapor degreaser vat (Electric Shop) in late 1999.

Figure 2.0 shows the distribution of dissolved PCE based on the May 2000 annual sampling event. PCE is present in a plume extending from the Electric Shop northeastward past the Yellowstone River. Although PCE is detectable over a large area, most PCE concentrations above 50 ug/l are restricted to the railyard beneath and downgradient from the northern half of the Electric Shop and the center of the Locomotive Shop.

Figure 3.0 shows the distribution of dissolved TCE based on the May 2000 sampling event. Most monitoring wells contained TCE concentrations below the 5 ug/l Maximum Contaminant Level (MCL). TCE concentrations above the 5 ug/l MCL are restricted to a narrow area primarily within the rail yard, stretching from the Waste Water Treatment Plant (WWTP) northeastward towards the Yellowstone River.

Figure 4.0 shows the distribution of cis-DCE concentrations in the aquifer for May 2000. No cis-DCE concentrations were detected above the 70 ug/l MCL during this sampling event. The primary source area for cis-DCE is the WWTP vicinity, including the WWTP grit chambers and the WWTP sump.

Vinyl chloride was detected downgradient from the WWTP in ground water samples from Well L-87-2 (21 ug/l in November 1999, 11 ug/l in May 2000, and 17 ug/l in November 2000) and Well L-88-10 (1.1 ug/l in November 1999, 0.46 ug/l in May 2000, and 0.67 ug/l in November 2000). It is suspected that this vinyl chloride is created by degradation of cis-1,2-DCE in the hydrocarbon smear zone beneath the WWTP area. The MCL for vinyl chloride is 2 ug/l.

Vinyl chloride and other contaminants detected during the November and May ground water sampling events are tabulated on Table 5.0. No compounds other than PCE, TCE, and vinyl chloride exceeded their respective MCLs.

4.1.1 VOC Concentration Declines

The overall decline in dissolved chlorinated-VOC concentrations is illustrated by plotting VOC concentrations from specific wells between May 1989 and May 2000. Figures 5.0 and 6.0 show TCE and PCE concentration declines in Well L-88-10; figures 7.0 through 12.0

show PCE concentration declines in Wells 89-4, L-88-13, 92-4, 89-6, 92-2, and LS-11 respectively. These wells border private property. Observed PCE concentrations in these wells have declined between 44 and 92 percent since May 1989.

4.1.2 MDEQ Split Sample Results

No split samples were collected by the MDEQ during the November 1999, May 2000, or November 2000 ground water sampling events.

4.2 Natural Attenuation Parameter Results

Selected wells were sampled for the natural attenuation parameters: dissolved oxygen (DO), nitrate (NO_3), ferrous iron (Fe^{+2}), and methane (CH_4) during the November 1999 sampling event. These parameters indicate the extent of natural biodegradation occurring in the aquifer beneath and around the diesel fuel plume. DO, and NO_3 are electron acceptors used by petroleum-degrading bacteria, whereas Fe^{+2} and CH_4 are products of petroleum degradation (MPCA, 1996; Sturman and Meyers, 1997). Under aerobic conditions, biodegradation of hydrocarbons proceeds utilizing oxygen as the terminal electron acceptor. As oxygen is depleted, the alternative electron acceptors utilized are, in order of importance, NO_3 , manganese (Mn^{+4}), Fe^{+3} , SO_4 , and ultimately carbon dioxide (CO_2). Utilization of Fe^{+3} yields soluble Fe^{+2} as a reaction product. Utilization of CO_2 yields CH_4 as a reaction product. The reactants and products of biodegradation that are most easily measured are DO, NO_3 , Fe^{+2} , and CH_4 ; therefore these were the compounds analyzed for during the November 1999 sampling event. NAP analysis was discontinued based on Envirocon's April 28, 2000 letter to the MDEQ.

Six samples were analyzed for natural attenuation parameters (NAPs) during the November 1999 sampling round. The sampled wells were chosen based on location in and around the petroleum free-product plume. Well 92-3, located upgradient from the plume, was chosen to evaluate background NAP concentrations. The second group comprised wells within the petroleum free-product plume. Another well (L-88-10) was located immediately downgradient of the petroleum free-product plume. Table 6.0 lists the NAP sample results, broken-out by position with respect to the petroleum free-product plume.

The results demonstrate that electron donor concentrations (DO and NO_3) generally drop as ground water moves below the petroleum free-product plume, remain depressed until ground water passes out from beneath the petroleum free-product plume, and then begin to rebound downgradient. In contrast, the NAP results demonstrate that degradation by-product concentrations (Fe^{+2} , CH_4) generally increase as ground water passes beneath the petroleum free-product plume, remain elevated until ground water passes beyond the petroleum free-product plume, and then drop again downgradient.

In summary, NAP analyses reveal that petroleum-degrading microbes are utilizing the electron acceptors: oxygen, CO_2 , NO_3 , and Fe^{+3} to biodegrade hydrocarbons.

4.3 Free-Product Thickness Measurements

Table 7.0 shows the petroleum free-product thickness measurements collected between February 1995 and November 2000. Figure 15.0 shows the general outline of the free-product plume, the locations of wells measured for product, and product thickness values during June 2000. Of the wells containing measurable free-product, most contain less than one-quarter-foot total apparent product thickness. Assuming that apparent product thickness is two to four times the actual thickness, this reveals that the majority of the petroleum free-product plume contains less than one inch of free product.

5.0 CONCLUSIONS

This report presents the results of the eleventh complete year of ground water sampling at the LRY. The two primary ground water concerns at the LRY are a plume of dissolved chlorinated VOCs in the aquifer and a plume of free and residual diesel fuel at the water table. These two plumes had separate source areas and only partially overlap.

The concentrations of dissolved chlorinated VOCs have declined significantly since 1989. The 2000 ground water monitoring results are consistent with this trend. At many monitoring well locations, the dissolved chlorinated-VOC concentrations have declined as much as 90 percent since 1989.

We can reasonably expect VOC concentrations to continue to decline in wells downgradient of the Livingston Railyard, both west and east of the Yellowstone River. This assumption is based on the dynamic nature of the aquifer, demonstrated natural attenuation of contaminants, and favorable impacts from source removal activities.

The apparent thickness of the petroleum free-product plume has also declined since regularly scheduled measurements began in 1989. This is, at least in part, due to biodegradation by indigenous microbes. Measurements of both reactants and products of biodegradation within ground water beneath the petroleum free-product plume reveal that biodegradation is occurring.

6.0 REFERENCES

- MPCA, 1996, Assessment of Natural Biodegradation at Petroleum Release Sites; Minnesota Pollution Control Agency Fact Sheet #3.21; May 1996.
- Sturman and Meyers, 1997, Intrinsic Bioremediation as a Remedial Option at Petroleum Contaminated Sites; notes and appendices from presentation.
- Envirocon, 1998, Final Draft Soil and Ground Water Feasibility Study Report, Livingston Rail Yard, Livingston, Montana. Prepared for the Burlington Northern and Santa Fe Railway Company; January 1998.

TABLES

Table 1.0
November 1999, May, and November 2000 Groundwater Samples
2000 Annual Ground Water Report

Sample Number	Sample Location	Sample Date	Analyses
140101-1685	89-4	11/8/99	601
140101-1686	89-4 duplicate	11/8/99	601
140101-1687	92-2	11/8/99	601
140101-1688	90-3	11/9/99	601
140101-1689	92-1	11/9/99	601
140101-1690	89-9	11/9/99	601
140101-1691	94-2	11/9/99	601
140101-1692	L-87-2	11/10/99	601, NAP
140101-1693	L-87-7	11/10/99	NAP
140101-1694	L-88-13	11/10/99	NAP
140101-1695	L-88-10	11/10/99	601, NAP
140101-1696	92-3	11/10/99	NAP
140101-1697	L-87-8	11/11/99	601, NAP
140101-1698	94-1	11/11/99	601
140101-1699	89-3	11/11/99	601
140101-1700	Trip Blank	5/16/00	601
140101-1701	89-2	5/16/00	601
140101-1702	L-87-3	5/16/00	601
140101-1703	89-4	5/16/00	601
140101-1704	89-6	5/16/00	601
140101-1705	89-10	5/16/00	601
140101-1706	L-88-10	5/16/00	601
140101-1707	LS-11	5/17/00	601
140101-1708	90-3	5/17/00	601
140101-1709	94-2	5/17/00	601
140101-1710	92-2	5/17/00	601
140101-1711	94-1	5/18/00	601
140101-1712	89-9	5/18/00	601
140101-1713	L-87-2	5/18/00	601
140101-1714	89-3	5/19/00	601
140101-1715	89-3 duplicate	5/19/00	601
140101-1716	L-88-10 duplicate	5/23/00	601
140101-1717	L-88-13	5/23/00	601
140101-1718	L-88-13 duplicate	5/23/00	601
140101-1719	L-87-7	5/24/00	601
140101-1720	L-87-4	5/24/00	601
140101-1721	1	5/24/00	601
140101-1722	2	5/24/00	601
140101-1723	3	5/24/00	601
140101-1724	4	5/24/00	601
140101-1725	5	5/24/00	601
140101-1726	6	5/24/00	601
140101-1727	B Street	5/25/00	524.2
140101-1728	92-1	5/25/00	601
140101-1729	92-1 duplicate	5/25/00	601
140101-1730	89-4	11/14/00	601
140101-1731	92-1	11/14/00	601
140101-1732	L-88-10	11/14/00	601
140101-1733	travel blank	11/14/00	601
140101-1734	L-87-2	11/14/00	601
140101-1735	89-9	11/15/00	601
140101-1736	89-3	11/15/00	601
140101-1737	89-3 duplicate	11/15/00	601
140101-1738	92-2	11/15/00	601
140101-1739	94-1	11/16/00	601
140101-1740	94-2	11/16/00	601

Notes:

601 - EPA Method 601- VOCs

524.2 - EPA Method 524.2 - VOCs

NAP - Natural Attenuation Parameters - DO, NO3, SO4, Fe+2, CH4

Table 2.0
PCE Analytical Results
2000 Annual Ground Water Report

MCL = 5 ug/l (exceedances in bold)

Sample Location	Nov. 1995 (ug/l)	May 1996 (ug/l)	Nov. 1996 (ug/l)	May 1997 (ug/l)	Nov. 1997 (ug/l)	May 1998 (ug/l)	Dec. 1998 (ug/l)	May 1999 (ug/l)	Nov. 1999 (ug/l)	May 2000 (ug/l)	Nov. 2000 (ug/l)
1	<0.5J			<0.5		<0.5		<0.5		<0.5	
2		<0.5J		0.5J		<0.5J		<0.5J		<0.5	
3		<0.5J		<0.5		NS		<0.5J		<0.5	
4		<0.5J		<0.5		<0.5		<0.5		<0.5	
5	0.63	<0.5J		<0.5		<0.5J		<0.5J		<0.5	
6	1.2	1.4		<0.5		0.74		<0.5J		<0.5	
89-2	<0.5	<0.5		<0.5		<0.5		<0.5		<0.5	
89-3	199	205	172	163	204	134	111D	130D	136	123D, 142D	154D, 140D
89-4	84	137	NS ¹	87	99	59	86D	80D	88, 76	87D	82D
89-6		16		12		15		14		9.8	
89-9	62		59	69	58	NS	48D	41D	46	52D	44D
89-10		55		35		48		36D		32D	
90-3		29	12	11	8.4	20	18	17D	11	17	(dry)
92-1	109	55	NS ²	85	217	168	60D		152	73D, 96D	117D
92-2	27	9.7	21	NS ³	13	8.1	2.4	6.6	15	12	14
92-4	4.4	28		2.4		33		21D			
94-1	2.4	1.8	3.6	NS ³	1.9	1.6	1.8	1.6	1.4	1.5	1.3
94-2	<0.5J	<0.5J	<0.5J	NS ³	<0.5J	<0.5J	<1.0	<0.5	<0.5J	<0.5J	<0.5J
L-87-2	1.8	<0.5	<0.5	<0.5	<0.5	<0.5J	<1.0	<0.5	<0.5	<0.5	<0.5
L-87-3	89	76		44		49		46D		54D	
L-87-4		<0.5		<0.5		<0.5		<0.5		<0.5	
L-87-5	51	64	(dry)	69		(dry)	47D	(dry)		(dry)	(dry)
L-87-7				<0.5		<0.5		<0.5		<0.5	
L-87-8	3.9	2.4	2.4	2.5	1.7	3.4	<1.0	1.7	1.7	HC recovery	No pump
L-88-10	40	30	29	19	28	27	23D	29D	29	24D, 23D	24D
L-88-13		16		15		14		13		11, 11	
LS-11	20	34		25		17		17		14	
B-Street		<0.5		<0.5		<0.5		<0.5		<0.5	

Notes:

J - Compound was detectable but less than the practical quantification limit.

D - Value was derived from a 10 times dilution.

NS¹ - Well 89-4 had been vandalized and could not be sampled in November 1997.

NS² - Well 92-1 was mistakenly not sampled during November 1997.

NS³ - Wells 92-2, 94-1, and 94-2 were not accessible for sampling during May 1997 due to flooding of the Yellowstone River.

NS⁴ - The Rainbow Motel well was not operational during May 1997.

Table 3.0
TCE Analytical Results
2000 Annual Ground Water Report

MCL = 5 ug/l (exceedances in bold)

Sample Location	Nov. 1995 (ug/l)	May 1996 (ug/l)	Nov. 1996 (ug/l)	May 1997 (ug/l)	Nov. 1997 (ug/l)	May 1998 (ug/l)	Dec. 1998 (ug/l)	May 1999 (ug/l)	Nov. 1999 (ug/l)	May 2000 (ug/l)	Nov. 2000 (ug/l)
1	<0.5			<0.5		<0.5		<0.5		<0.5	
2		<0.5		<0.5		<0.5		<0.5		<0.5	
3		<0.5		<0.5		NS		<0.5		<0.5	
4		<0.5		<0.5		<0.5		<0.5		<0.5	
5	<0.5	<0.5		<0.5		<0.5		<0.5		<0.5	
6	<0.5	<0.5		<0.5		<0.5		<0.5		<0.5	
89-2	<0.5	<0.5		<0.5		<0.5		<0.5		<0.5	
89-3	0.59	1.4	0.82	0.97	2.2	0.7	1.4	1.5	1.2	1.4, 0.99	1.3, 1.1
89-4	1.5	1.2	NS ¹	1.1	1.7	1.4	1.6	1.2	1.8, 1.8	1.4	1.5
89-6		<0.5J		<0.5J		<0.5J		<0.5J		<0.5	
89-9	2.7		2.4	5.6	4.1	NS	3.0	2.2	2.6	2.4	2.6
89-10		5.5		4.3		4.9		3.6		3.5	
90-3		2.6	2.1	1.2	2.0	2.0	1.9	1.5	2.0	1.2	(dry)
92-1	<0.5J	<0.5J	NS ²	<0.5J		1.1	<1.0		<0.5J	<0.5, <0.5	<0.5
92-2	3.7	0.67	2.0	NS ³	1.2	0.57	<1.0	<0.5J	1.3	1.1	0.97
92-4	1.0	1.4		<0.5J		1.3		1.1			
94-1	<0.5	<0.5	<0.5	NS ³	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
94-2	<0.5	<0.5	<0.5	NS ³	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
L-87-2	3.7	14	1.9	3.2	4.5	11	1.5	6.2	1.1	7.8	1.1
L-87-3	8.8	8.3		7.5		6.8		5.3		5.6	
L-87-4		<0.5		<0.5		<0.5		<0.5		<0.5	
L-87-5	3.0	3.4	(dry)	5.0		(dry)	3.0	(dry)		(dry)	(dry)
L-87-7				<0.5		<0.5		<0.5		<0.5	
L-87-8	1.9	2.2	1.6	0.74	1.1	3.8	4.1	6.1	3.3	HC recovery	No pump
L-88-10	15	11	16	8.7	11	9.1	9.5	8.4	8.7	7.3, 7.6	7.8
L-88-13		2.5		2.4		2.3		1.9		1.3, 1.8	
LS-11	6.8	6.8		5.6		6.8		7.2		5.9	
B-Street		<0.5		<0.5		<0.5		<0.5		<0.5	

Notes:

J - Detectable but less than the practical quantification limit.

NS¹ - Well 89-4 had been vandalized and could not be sampled in November 1997.

NS² - Well 92-1 was mistakenly not sampled during November 1997.

NS³ - Wells 92-2, 94-1, and 94-2 were not accessible for sampling during May 1997 due to flooding of the Yellowstone River.

NS⁴ - The Rainbow Motel well was not operational during May 1997.

Table 4.0
cis-1,2-DCE Analytical Results
2000 Annual Ground Water Report
MCL = 70 ug/l (exceedances in bold)

Sample Location	Nov. 1995 (ug/l)	May 1996 (ug/l)	Nov. 1996 (ug/l)	May 1997 (ug/l)	Nov. 1997 (ug/l)	May 1998 (ug/l)	Dec. 1998 (ug/l)	May 1999 (ug/l)	Nov. 1999 (ug/l)	May 2000 (ug/l)	Nov. 2000 (ug/l)
1	<0.5			<0.5		<0.5		<0.5		<0.5	
2		<0.5		<0.5		<0.5		<0.5		<0.5	
3		<0.5		<0.5				<0.5		<0.5	
4		<0.5		<0.5		<0.5		<0.5		<0.5	
5	<0.5	<0.5		<0.5		<0.5		<0.5		<0.5	
6	<0.5	<0.5		<0.5		<0.5		<0.5		<0.5	
89-2	<0.5	<0.5		<0.5		<0.5		<0.5		<0.5	
89-3	<0.5	0.54	<0.5	<0.5	<0.5	<0.5	<1.0	0.62	<0.5	1.0, 0.80	0.76, 0.70
89-4	3.1	2.9	NS ¹	2.5	6.2	4.0	3.3	1.4	9.1, 8.9	5.0	2.8
89-6		<0.5		<0.5		<0.5		<0.5		<0.5	
89-9	1.1		0.84	3.2	4.3		1.8	1.2	1.1	0.93	1.6
89-10		8.3		4.2		5.4		3.4		3.3	
90-3		2.8	1.7	<0.5J	2.6	1.0	1.0	0.53	1.7	<0.5J	(dry)
92-1	12	21	NS ²	8.6	4.6	12	4.6		12	17, 15	1.3
92-2	4.1	0.74	1.6	NS ³	0.92	<0.5J	<1.0	<0.5J	0.68	0.60	0.54
92-4	<0.5J	0.81		<0.5		1.4		<0.5J			
94-1	<0.5	<0.5	<0.5	NS ³	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
94-2	<0.5	<0.5	<0.5	NS ³	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5
L-87-2	88	23	54	21	41	19	33D	17	28	15	24D
L-87-3	11	14		12		7.9		6.9		6.0	
L-87-4		<0.5		<0.5		<0.5		<0.5		<0.5	
L-87-5	1.2	0.91	(dry)	3.3		(dry)	1.9	(dry)		(dry)	(dry)
L-87-7				<0.5		<0.5		<0.5		<0.5	
L-87-8	1.4	0.55	<0.5J	<0.5J	<0.5J	<2.5J	<1.0	1.6	5.8	HC recovery	No pump
L-88-10	39	16	24	12	22	13	18	13	18	9.1, 9.8	14
L-88-13		0.68		1.0		1.1		0.79		0.63, 0.64	
LS-11	9.0	10		5.9		6.7		7.6		5.5	
B-Street		<0.5		<0.5		<0.5		<0.5		<0.5	

Notes:

J - Detectable but less than the practical quantification limit.

NS¹ - Well 89-4 had been vandalized and could not be sampled in November 1997.

NS² - Well 92-1 was mistakenly not sampled during November 1997

NS³ - Wells 92-2, 94-1, and 94-2 were not accessible for sampling during May 1997 due to flooding of the Yellowstone River.

NS⁴ - The Rainbow Motel well was not operational during May 1997.

Table 5.0

Other Compounds Detected

ug/l (ppb)

Location	Date	Vinyl Chloride	Chlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	trans-Dichloroethene	2-Chlorotoluene
	MCL =	2	100	600	?	75	100	not regulated
L-87-2	Nov-99	21	33	1.9	0.59	4.1	1.2	51
	May-00	11	19	1.5	0.44J	3.0	1.0	40
	Nov-00	17	33	1.9	0.55	4.2	1.1	48
L-88-10	Nov-99	1.1	2.8	0.64	0.29J	1.1	0.31J	1.0
	May-00	0.46J	1.4	0.43J		0.59	0.24J	
	Nov-00	0.67	3.0	0.56		0.66	0.30J	0.26J
LS-11	May-00		2.4		0.39J	3.0		
L-87-7	May-00							0.52

Table 6.0

Natural Attenuation Parameter (NAP) Results
2000 Annual Ground Water Report

November 1999 Sampling Event
(No NAPs sampled for in 2000)

*****Electron Donors (consumed)*****				Degradation Products	
Well Location	Dissolved Oxygen DO [mg/l]	Nitrate (NO3) [mg/l]	Ferrous Iron Fe +2 [mg/l]	Methane CH4 [ppmv]	
Well(s) Upgradient from the Diesel Free-Product Plume					
92-3	4.9	0.85	< 0.03	0.0017	
Well(s) within the Plume, moving Downgradient into progressively higher Chloroethene concentrations					
L-87-7	2.2	< 0.05	0.14	< 0.0002	
L-87-8	4.4	0.32	1.90	0.0011	
L-87-2	1.6	< 0.05	1.63	0.0018	
L-88-13	1.5	0.53	< 0.03	0.0013	
Well(s) Downgradient from the Plume, Moving Progressively Away					
L-88-10	2.6	0.11	< 0.03	0.0003	

Table 7.0

February 1995 Through November 2000
Apparent Free-Product Thickness Measurements
2000 Annual Ground Water Report

[feet]

Well	Feb-95	May-95	Aug-95	Nov-95	May-96	Nov-96	May-97	Nov-97	May-98	May-99	Jun-99	Sep-99	Nov-99	Jun-00	Nov-00
LB-4	0.12	0.45	0.65				0.66	0.42	0.28	0.39	0.40	0.47		0.09	
L-87-2	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	0.01	ND	ND	
L-87-4	ND	ND	0.19	0.10		0.39	0.98	0.68	0.11		0.03	0.02		ND	
L-87-6											0.01	ND			
L-87-7	0.78	0.24	0.65	0.70	0.24	0.46	0.90	0.48	0.33		0.55	0.67	ND	0.22	
L-87-8	1.35	0.12	0.31	0.27	0.11	0.40	0.24	0.23			0.01	0.07			0.40
L-88-13											<0.01	ND	ND	ND	
HRO-4								0.41							
HRO-6	0.63	0.36	0.52		0.65	0.74	0.43	0.70	0.37	0.34	0.04	0.14		0.04	
HRO-7							0.58	0.61	0.27	0.20	<0.01	0.23		0.01	
HRO-8			ND					dry							
HRO-9	0.06				0.03		0.04	0.05	0.03	0.03	0.02	0.01		ND	
HRO-10	<0.01		<0.01		ND			<0.01							
HRO-11		0.23	ND												
HRO-12	<0.01	ND	ND		ND										
HRO-13	ND	ND	ND		ND										
HRO-14	ND	<0.01			ND										
HRO-15	0.07	<0.01													
HRO-16	0.50	0.04													
HRO-20	0.13	ND	0.06	0.16	0.03		ND	0.15							
HRO-21	<0.01	ND	ND	<0.01	ND		<0.01								
HRO-22	ND	<0.01	ND	0.01	ND		0.01	0.06							
HRO-23	ND	ND	ND		ND		ND	ND							
HRO-24	0.14	0.01	0.14	0.24	ND		0.03	0.17							
RW-1	ND	0.01			ND		ND			<0.01	0.01	ND			
RW-2	ND	<0.01			ND		ND			0.01	0.01	ND			
RW-3	0.03	<0.01					0.15			0.10	0.10	ND			
RW-4	ND	0.16			0.40		0.34			1.01	0.41	ND		0.75**	
RW-5	0.07	0.24													
RW-6	0.14*	0.22*			0.13		0.36			0.23	0.36	0.82		0.70**	
RW-7	0.40	0.04	0.19	0.25	ND	0.26	0.06	0.20	0.13	0.17	0.01	0.01			
RW-8	0.02	0.03	0.15	0.17			0.04			0.05	0.02	0.08			
RW-9	ND	ND	ND	0.01	ND	ND	ND	ND	ND	<0.01	0.01	0.01			
LG-11					ND									ND	
LG-12					ND										
95-1					ND	ND	ND				0.01	ND		ND	
LPZ-100	0.04							0.17							

Notes: ** - Approx. 15 gal product recovered from RW-4 in July; 70 gal product recovered from RW6 in July using intermittent belt skimmer
 ND - No product detected
 <0.01 - Trace of product detected, but less than the resolution of the product probe's scale
 * - Approximately 35 gallons of product recovered from Well RW-6 during December 1994

Table 8.0

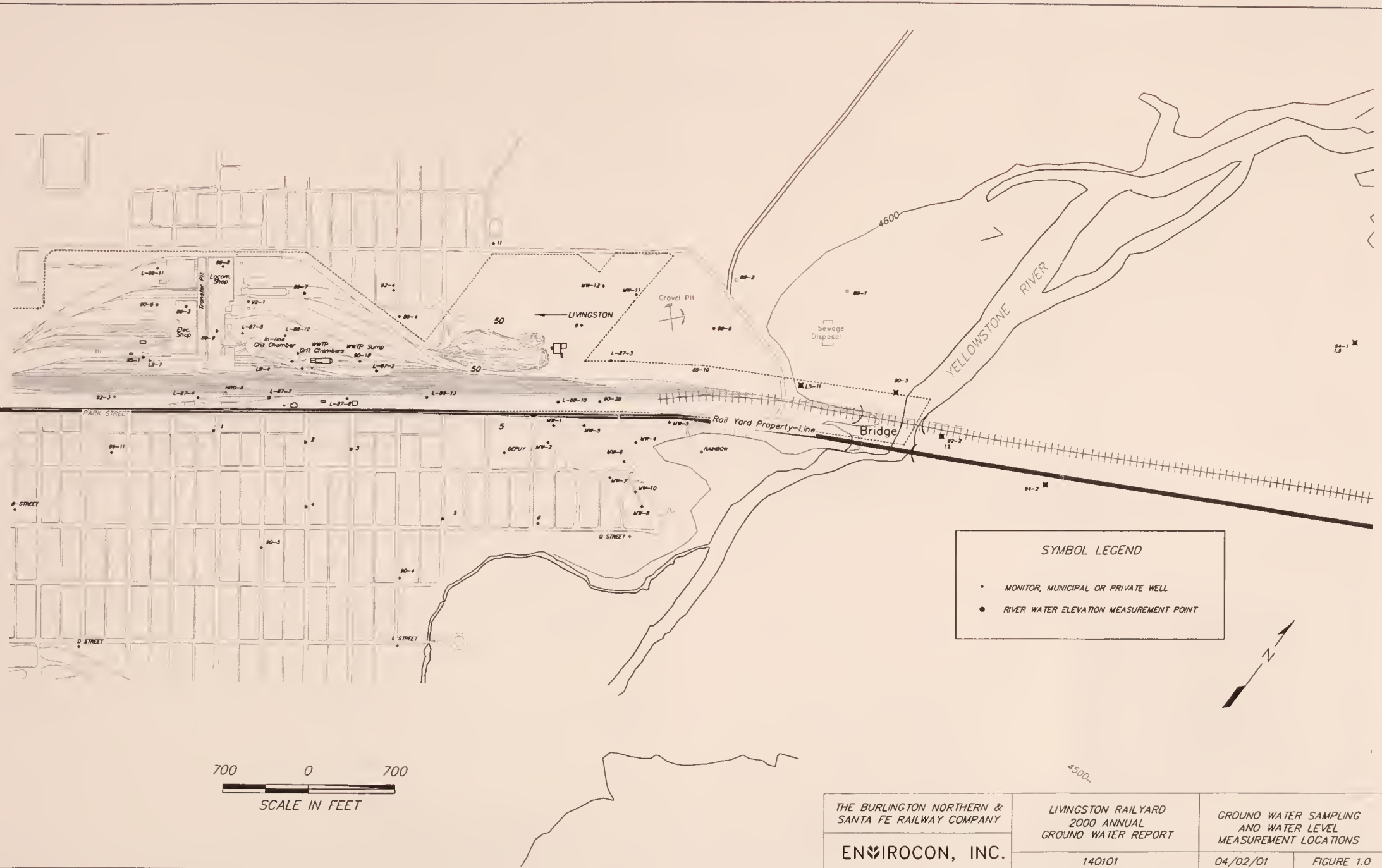
SWL Measurements
Well Static Water Elevations

Measured May 2000

Well Location	TOC Elevation [ft above msl]	Static Water Level [ft below TOC]			Water Elevation [ft above MSL]		
		5/16 to 5/19	5/23 to 5/25	6/1	5/16 to 5/19	5/23 to 5/25	6/1
1	4488.84		18.92			4469.92	
2	4486.48		19.16			4467.32	
3	4484.37		19.42			4464.95	
4	4476.05		9.12			4466.93	
5	4467.11		4.68			4462.43	
6	4465.24		4.58			4460.66	
7	4474.79						
8	4481.91						
11	4485.81						
LB-1	4504.05						
LB-2	4493.96						
LB-3	4499.99						
LB-4	4494.88			22.46			4472.42
LB-6	4497.30						
LG-5	4498.17						
LG-10	4496.99						
LG-11	4496.95			18.28			4478.67
LPW-1	4491.31						
LS-6	4501.64			21.45			4480.19
LS-7	4496.6						
LS-8	4462.95						
LS-9	4501.69						
LS-10	4503.74						
LS-11	4460.37	7.24			4453.13		
LS-12	4494.41						
POTW	4458.35						
L-87-1	4510.51			25.56			4484.95
L-87-2	4491.74	26.1			4465.64		
L-87-3	4482.58	26.32			4456.26		
L-87-4	4494.38		23.25			4471.13	
L-87-5	4495.24						
L-87-6	4488.39						
L-87-7	4492.83		23.8			4469.03	
L-87-8	4490.16						
L-88-9	4501.02			22.36			4478.66
L-88-10	4483.88	24.88	24.4		4459	4459.48	
L-88-11	4494.73						
L-88-12	4494.13						
L-88-13	4488.13		25.32			4462.81	
89-1	4458.45						
89-2	4479.72	24.24			4455.48		
89-3	4493.04	19.58			4473.46		
89-4	4489.46	22.28			4467.18		
89-5	4509.12						
89-6	4480.17	26.00			4454.17		
89-7	4495.59			27.93			4467.66
89-8	4493.13						
89-9	4493.18	21.48			4471.7		
89-10	4480.95	26.64			4454.31		
89-11	4491.98						
90-1A	4489.96						
90-1B	4489.84						
90-1C	4489.57						
90-2A	4478.98						
90-2B	4478.87			18.78			4460.09
90-3	4460.23	8.72			4451.51		
90-4	4469.22						
90-5	4476.17						
90-6	4496.73			21.62			4475.11
92-1	4495.29		24.22			4471.07	
92-2	4461.19*	6.96			#VALUE!		
92-3	?			22.66			
94-1	4451.99	8.30			4443.69		
94-2	4458.95	6.30			4452.65		
95-1	?	22.00					
HRO-6	4494.23			23.31			4470.92
HRO-7	?			23.45			
HRO-9	?			24.95			
RW-7	?			23.36			
RW-9	?			23.30			

* - DB states TOC = 4457.90

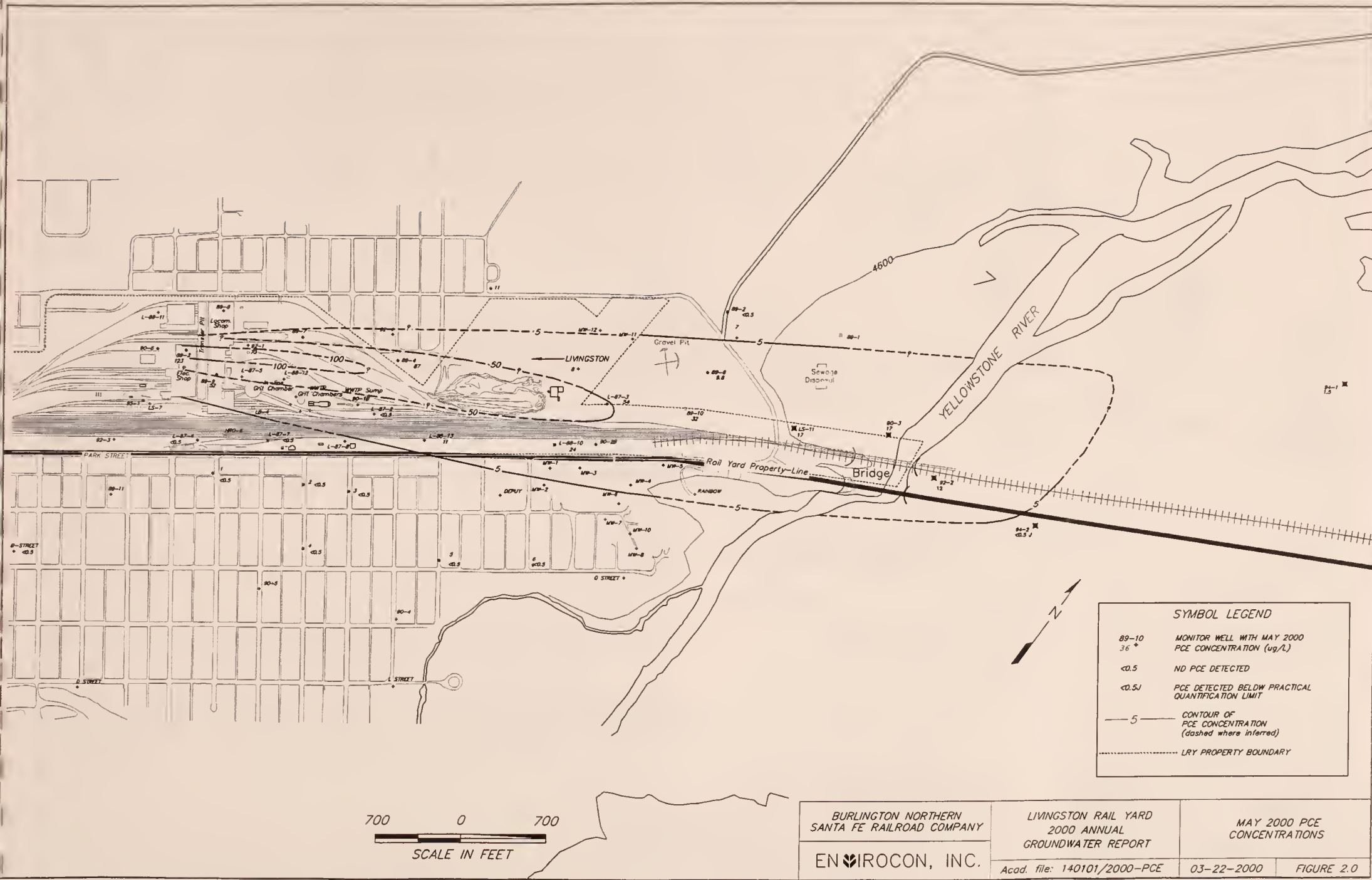
FIGURES

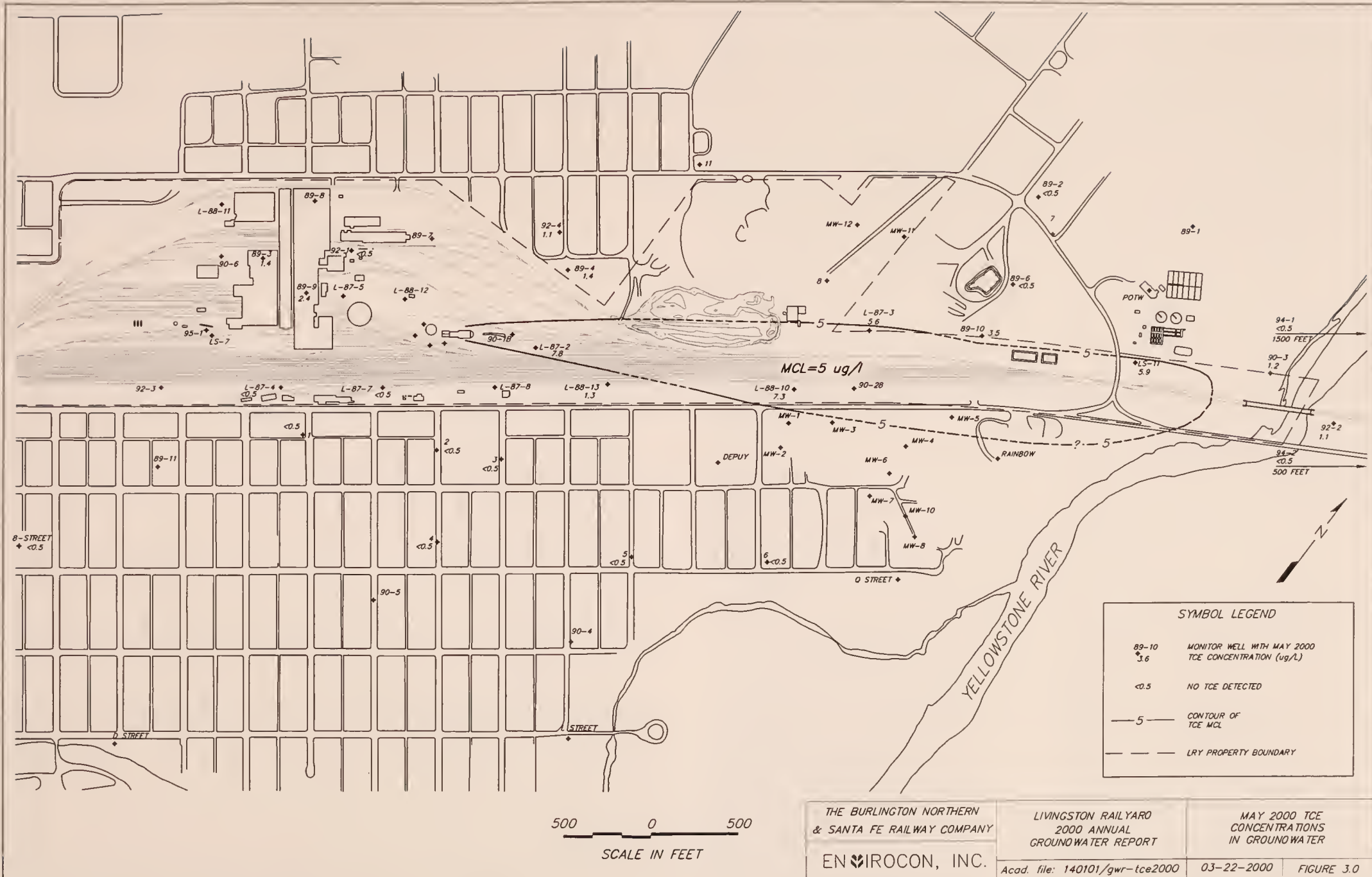


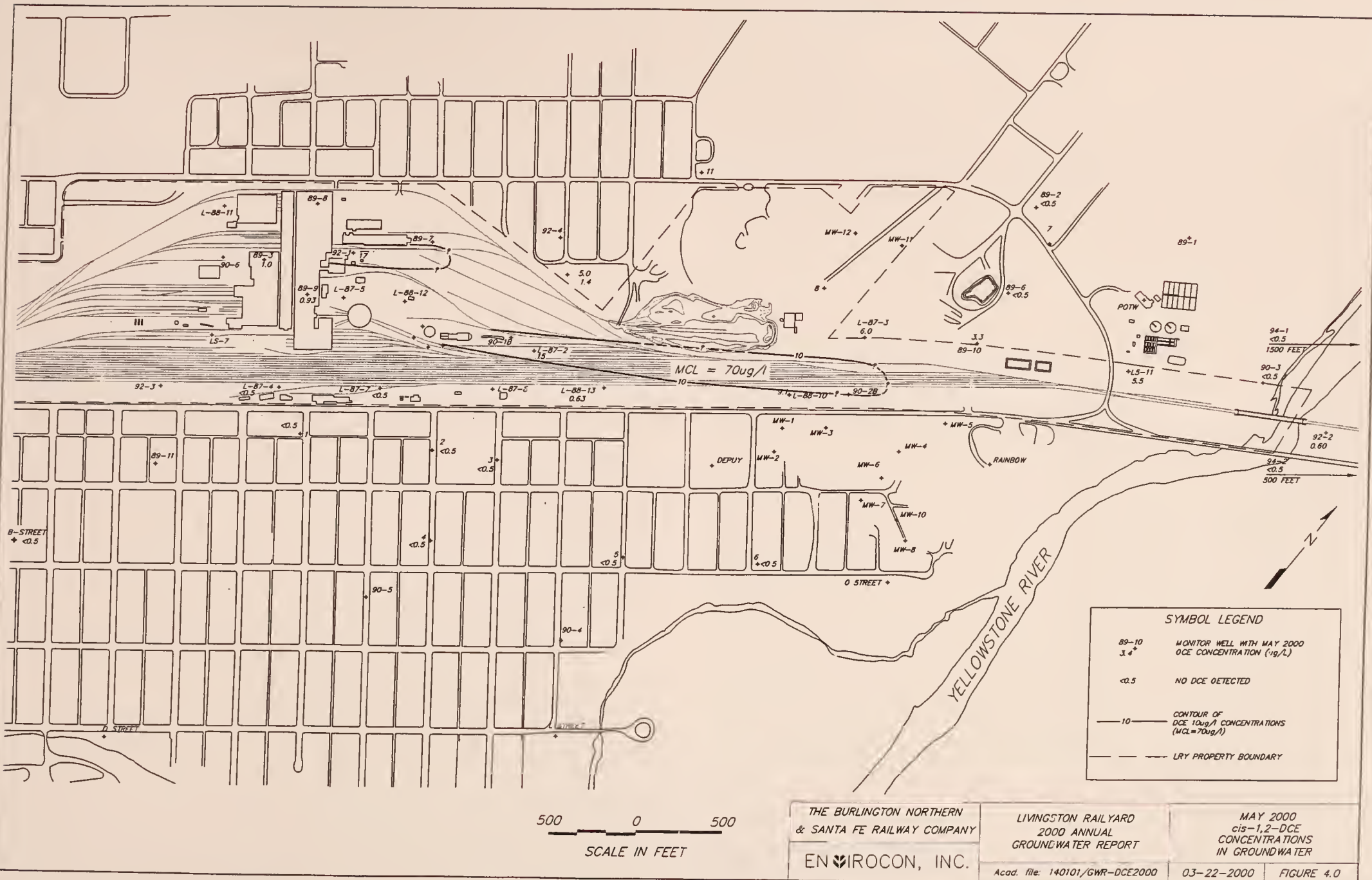
SYMBOL LEGEND

- MONITOR, MUNICIPAL OR PRIVATE WELL
- RIVER WATER ELEVATION MEASUREMENT POINT

THE BURLINGTON NORTHERN & SANTA FE RAILWAY COMPANY	LIVINGSTON RAILYARD 2000 ANNUAL GROUND WATER REPORT	GROUND WATER SAMPLING AND WATER LEVEL MEASUREMENT LOCATIONS	
ENVIROCON, INC.	140101	04/02/01	FIGURE 1.0

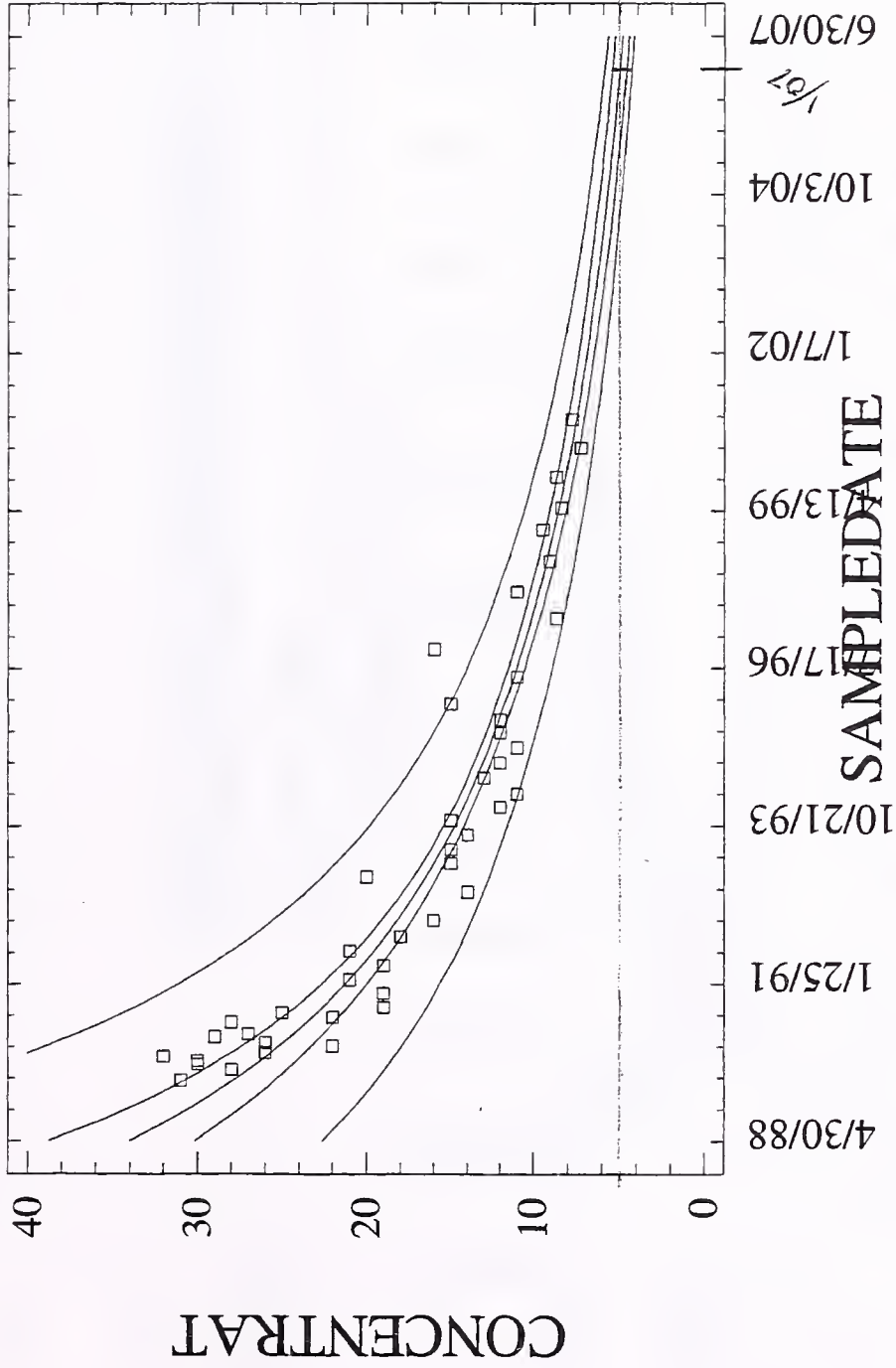






L-88-10 TCE

Power=-0.63416, Shift=0.0



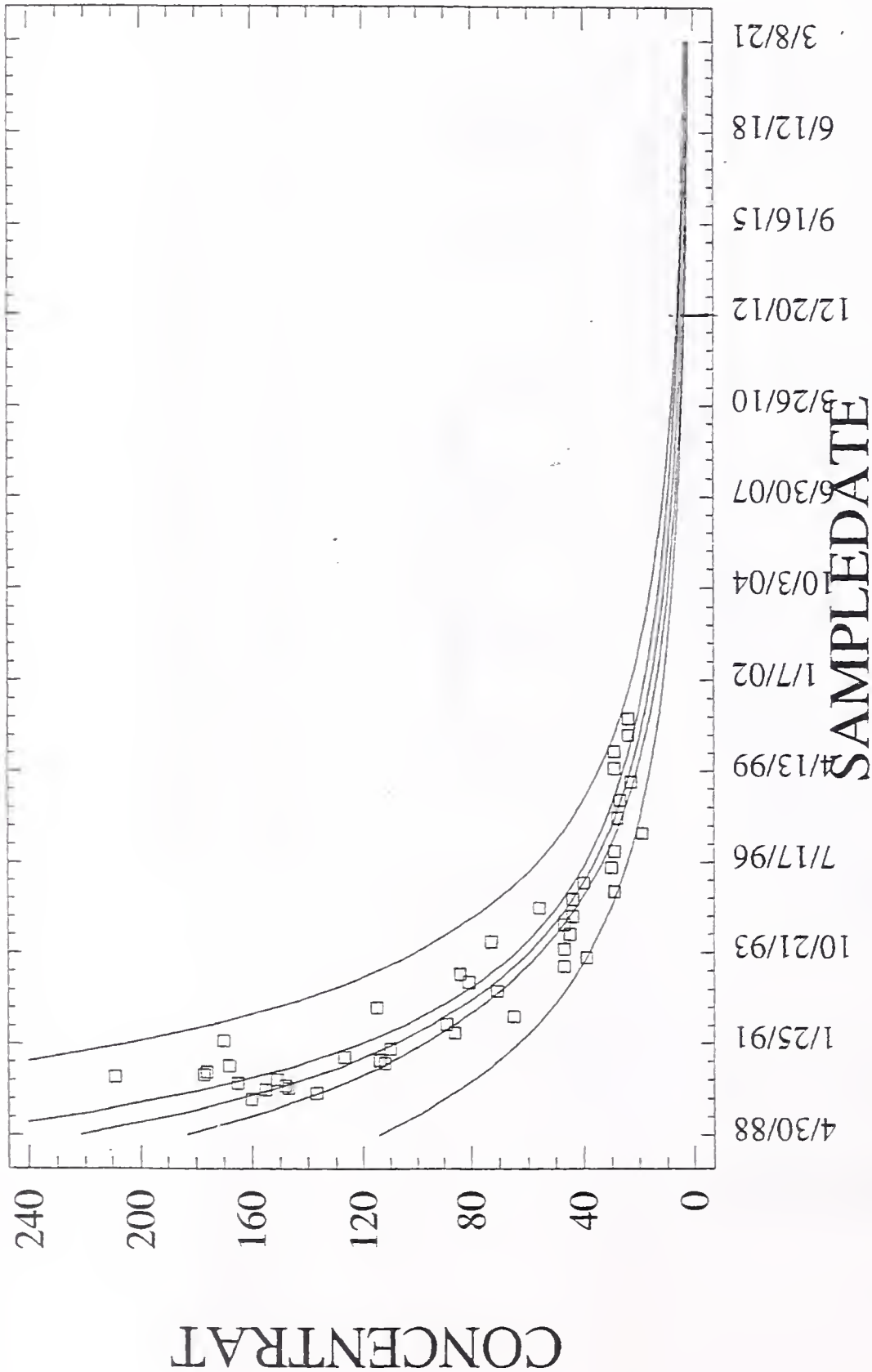
EXPONENTIAL REGRESSION LINE WITH
95% CONFIDENCE INTERVAL ENVELOPE
AVERAGE SLOPE OF MEAN IN $\mu\text{g/L}/\text{YEAR} = -1.7$
ACTUAL DECLINE OBSERVED = 76%

Solid line is the estimate of the mean concentration over time, statistically derived from the data collected to date.
Pair of dotted lines delineates the envelope containing the means of the data points of each point in time with a 95% degree of statistical confidence. I.E. the solid line described above could vary anywhere within this inner envelope.

ESTIMATED TIME FRAME FOR COMPLIANCE WITH MCL LEVEL 2007	THE BURLINGTON NORTHERN & SANTA FE RAILWAY COMPANY	LIVINGSTON RAIL YARD 2000 ANNUAL GROUNDWATER REPORT	TRICHLOROETHENE CONCENTRATIONS FOR WELL L-88-10
ENVIROCON, INC.	AutoCad FILE: PCEL8811.DWG	FIGURE 5.0	

Plot of Fitted Model for L-88-10 PCE

Power=-0.295947, Shift=0.0



EXPONENTIAL REGRESSION LINE WITH
 95% CONFIDENCE INTERVAL ENVELOPE
 AVERAGE SLOPE OF MEAN IN ug/L/YEAR = -12.4
 ACTUAL DECLINE OBSERVED = 89%

Solid line is the estimate of the mean concentration over time, statistically derived from the data collected to date.

Pair of dotted lines delineates the envelope containing the means of the data points at each point in time with a 95% degree of statistical confidence. I.E. the solid line described above could vary anywhere within this inner envelope.

ESTIMATED TIME FRAME FOR
 COMPLIANCE WITH MCL LEVEL
 2013

THE BURLINGTON NORTHERN &
 SANTA FE RAILWAY COMPANY

ENVIROCON, INC.

LIVINGSTON RAIL YARD
 2000 ANNUAL
 GROUNDWATER REPORT

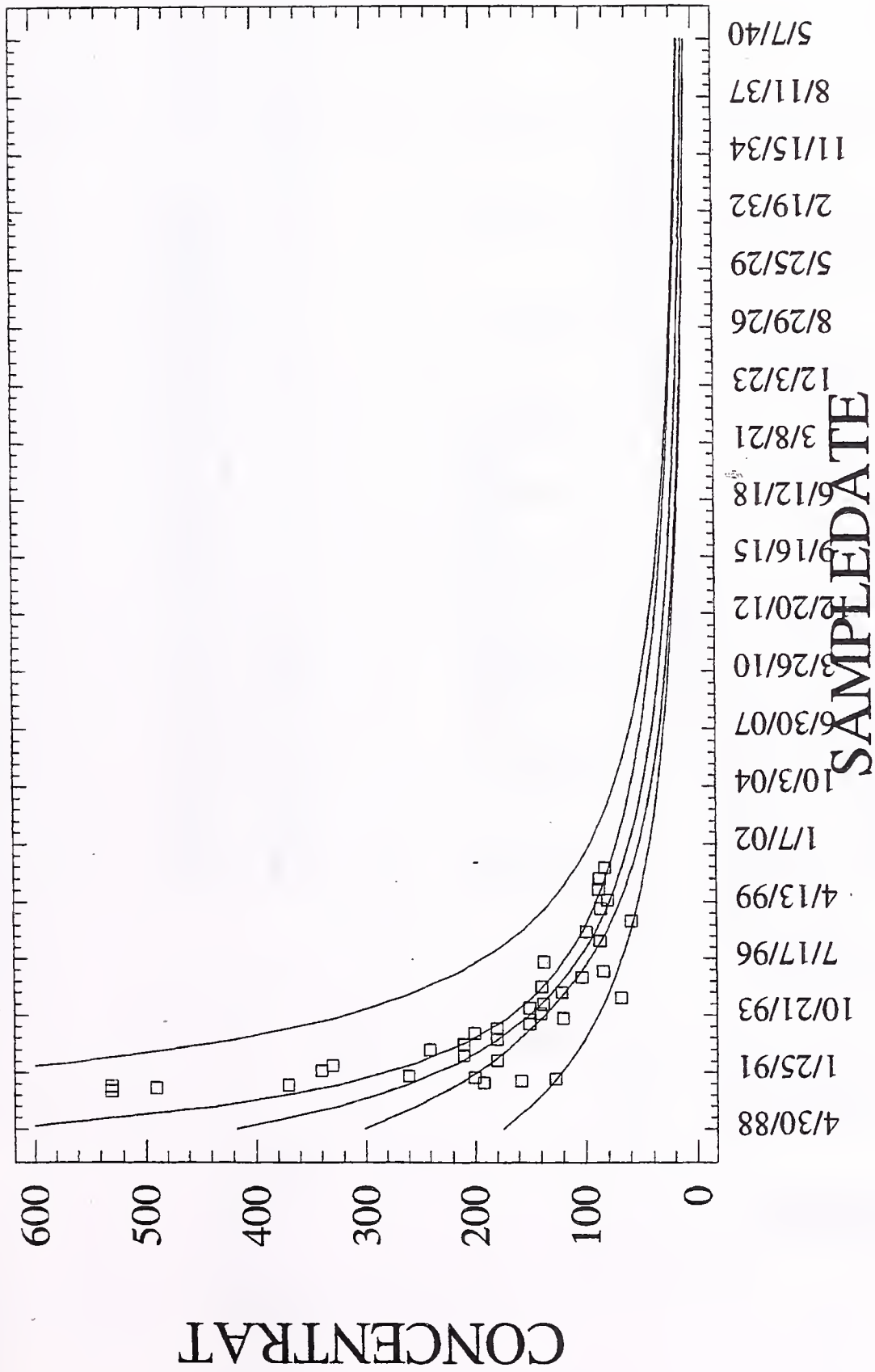
TETRACHLOROETHENE
 CONCENTRATIONS
 FOR WELL L-88-10

AutoCad FILE: PCE18811.DWG

FIGURE 6.0

89-4 PCE

Power=-0.553125, Shift=0.0



EXPONENTIAL REGRESSION LINE WITH 95% CONFIDENCE INTERVAL ENVELOPE
AVERAGE SLOPE OF MEAN IN $\mu\text{g/L/YEAR}$ = -19.2
ACTUAL DECLINE OBSERVED = 84%

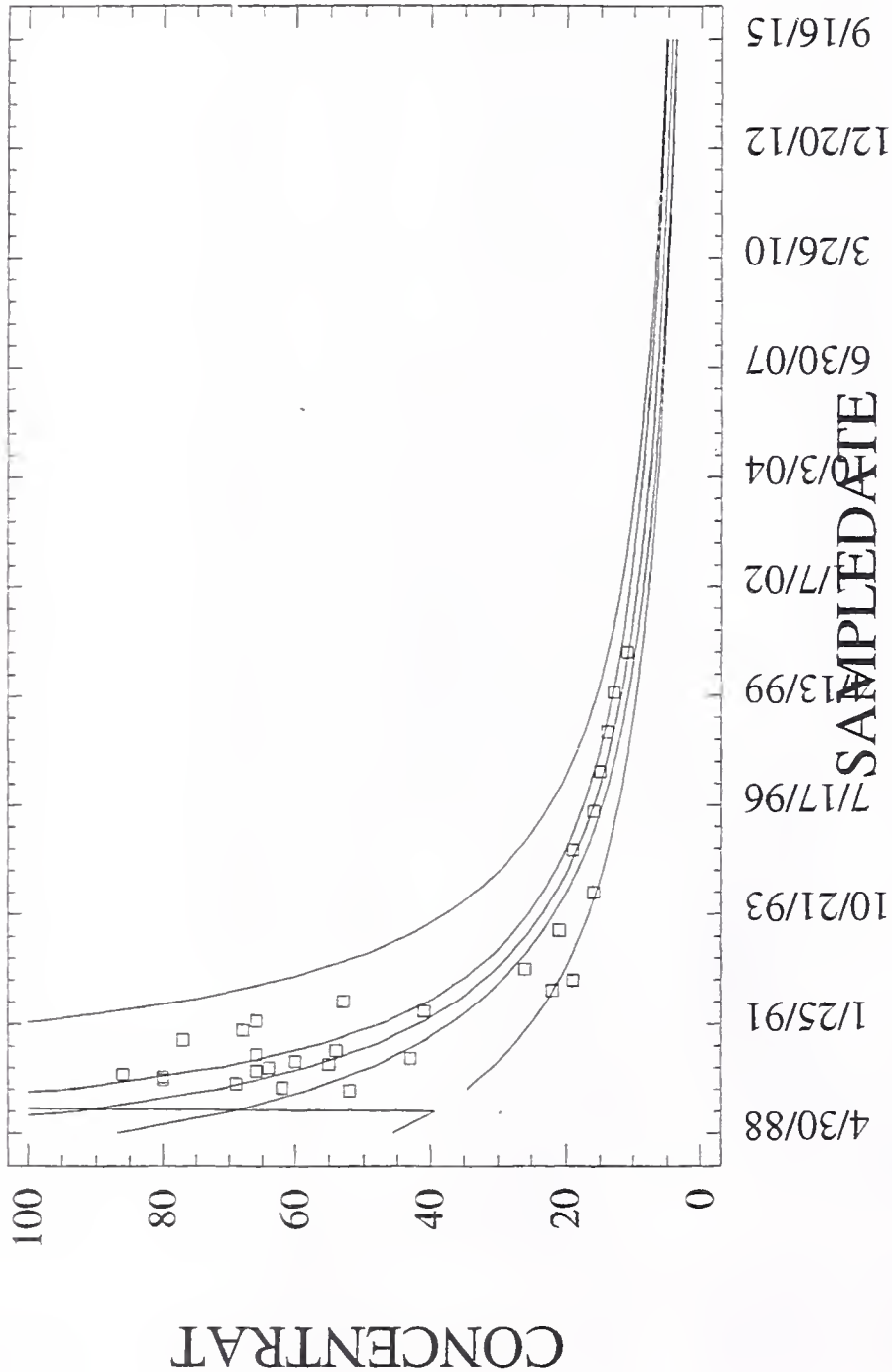
Solid line is the estimate of the mean concentration over time, statistically derived from the data collected to date.

Pair of dotted lines delineates the envelope containing the means of the data points at each point in time with a 95% degree of statistical confidence. I.E. the solid line described above could vary anywhere within this inner envelope.

ESTIMATED TIME FRAME FOR COMPLIANCE WITH MCL LEVEL AFTER 2040		THE BURLINGTON NORTHERN & SANTA FE RAILWAY COMPANY		LIVINGSTON RAIL YARD 2000 ANNUAL GROUNDWATER REPORT		TETRACHLOROETHENE CONCENTRATIONS FOR WELL 89-4	
ENVIROCON, INC.		AutoCad FILE: PCEL8811.DWG		FIGURE 7.0			

L-88-13 PCE

Power=-0.83125, Shift=0.0



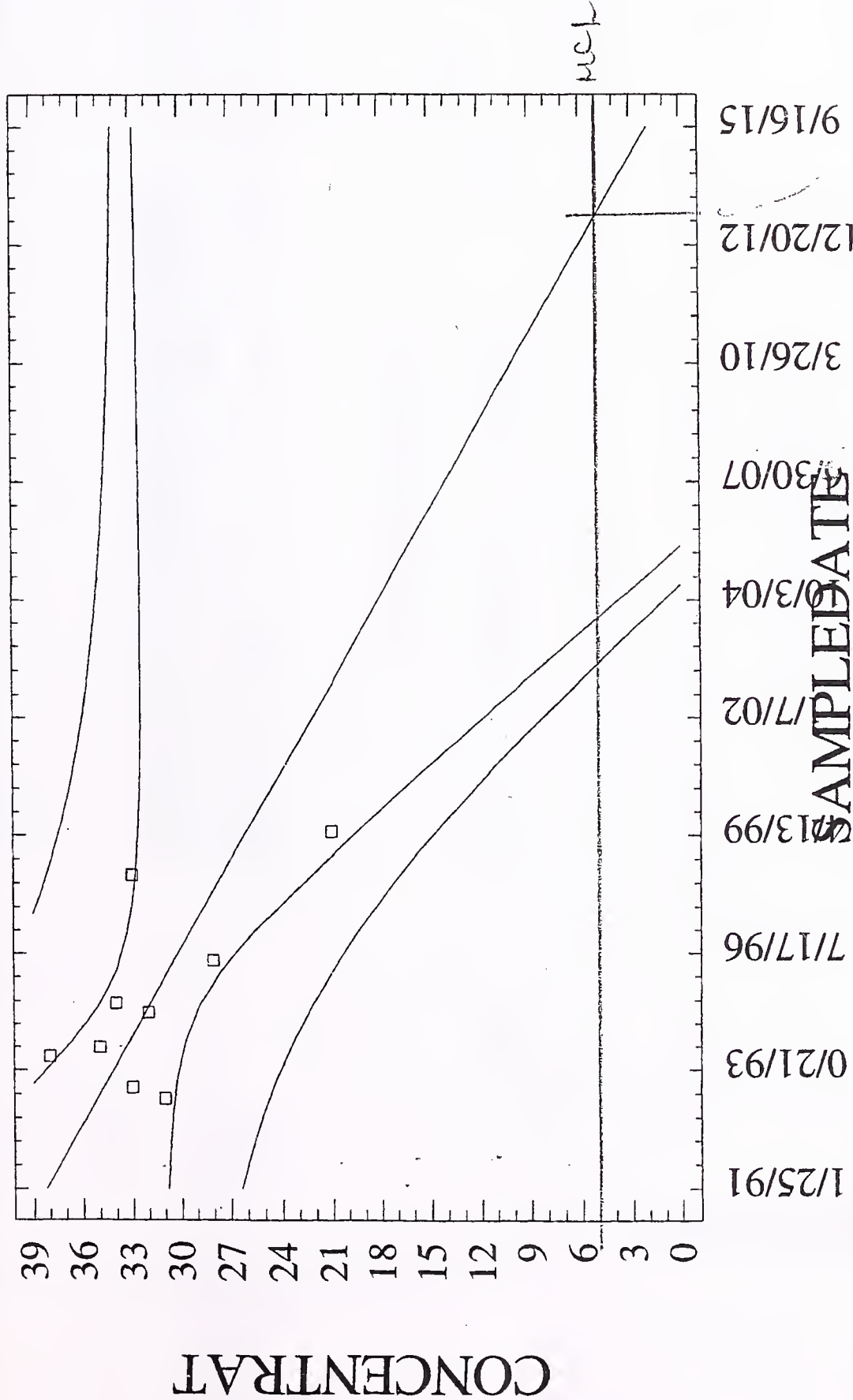
EXPONENTIAL REGRESSION LINE WITH
95% CONFIDENCE INTERVAL ENVELOPE
AVERAGE SLOPE OF MEAN IN ug/L/YEAR = -5.7
ACTUAL DECLINE OBSERVED = 87%

Solid line is the estimate of the mean concentration over time, statistically derived from the data collected to date.

Pair of dotted lines delineates the envelope containing the means of the data points at each point in time with a 95% degree of statistical confidence. I.E. the solid line described above could vary anywhere within this inner envelope.

ESTIMATED TIME FRAME FOR COMPLIANCE WITH MCL LEVEL 2013		THE BURLINGTON NORTHERN & SANTA FE RAILWAY COMPANY	LIVINGSTON RAIL YARD 2000 ANNUAL GROUNDWATER REPORT	TETRACHLOROETHENE CONCENTRATIONS FOR WELL L-88-13
ENVIROCON, INC.		AutoCad FILE: PCEL8811.DWG		FIGURE 8.0

PCE Concentrations 92-4: Winter & Spring Data Plotted (Summer & Fall all <5ug/L)



EXPONENTIAL REGRESSION LINE WITH
95% CONFIDENCE INTERVAL ENVELOPE
AVERAGE SLOPE OF MEAN IN ug/L/YEAR = -1.75
ACTUAL DECLINE OBSERVED = 44%

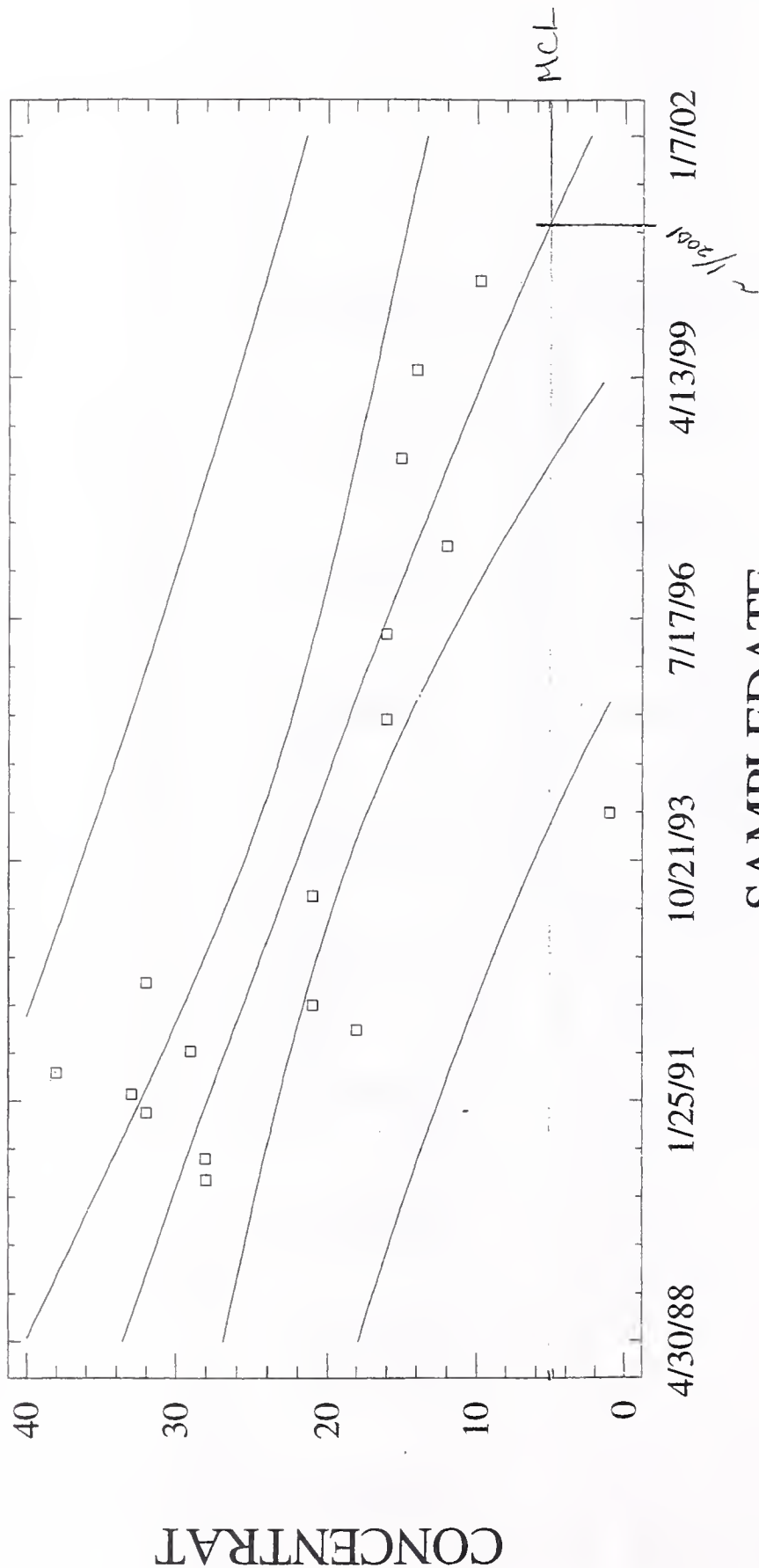
Solid line is the estimate of the mean concentration over time, statistically derived from the data collected to date.

Pair of dotted lines delineates the envelope containing the means of the data points at each point in time with a 95% degree of statistical confidence. I.E. the solid line described above could vary anywhere within this inner envelope.

ESTIMATED TIME FRAME FOR COMPLIANCE WITH MCL LEVEL 2014	THE BURLINGTON NORTHERN & SANTA FE RAILWAY COMPANY		LIVINGSTON RAIL YARD 2000 ANNUAL GROUNDWATER REPORT		TETRACHLOROETHENE CONCENTRATIONS FOR WELL 92-4	
	ENVIROCON, INC.		AutoCad FILE: PCEL8811.DWG		FIGURE 9.0	

Plot of Fitted Model 89-6 PCE

Power=1.14188, Shift=0.0



SAMPLE DATE

EXPONENTIAL REGRESSION LINE WITH
 95% CONFIDENCE INTERVAL ENVELOPE
 AVERAGE SLOPE OF MEAN IN ug/L/YEAR = -2.2
 ACTUAL DECLINE OBSERVED = 73%

Solid line is the estimate of the mean concentration over time, statistically derived from the data collected to date.

Pair of dotted lines delineates the envelope containing the means of the data points at each point in time with a 95% degree of statistical confidence. I.E. the solid line described above could vary anywhere within this inner envelope.

ESTIMATED TIME FRAME FOR
 COMPLIANCE WITH MCL LEVEL
 2001

THE BURLINGTON NORTHERN &
 SANTA FE RAILWAY COMPANY

ENVIROCON, INC.

LIVINGSTON RAIL YARD
 2000 ANNUAL
 GROUNDWATER REPORT

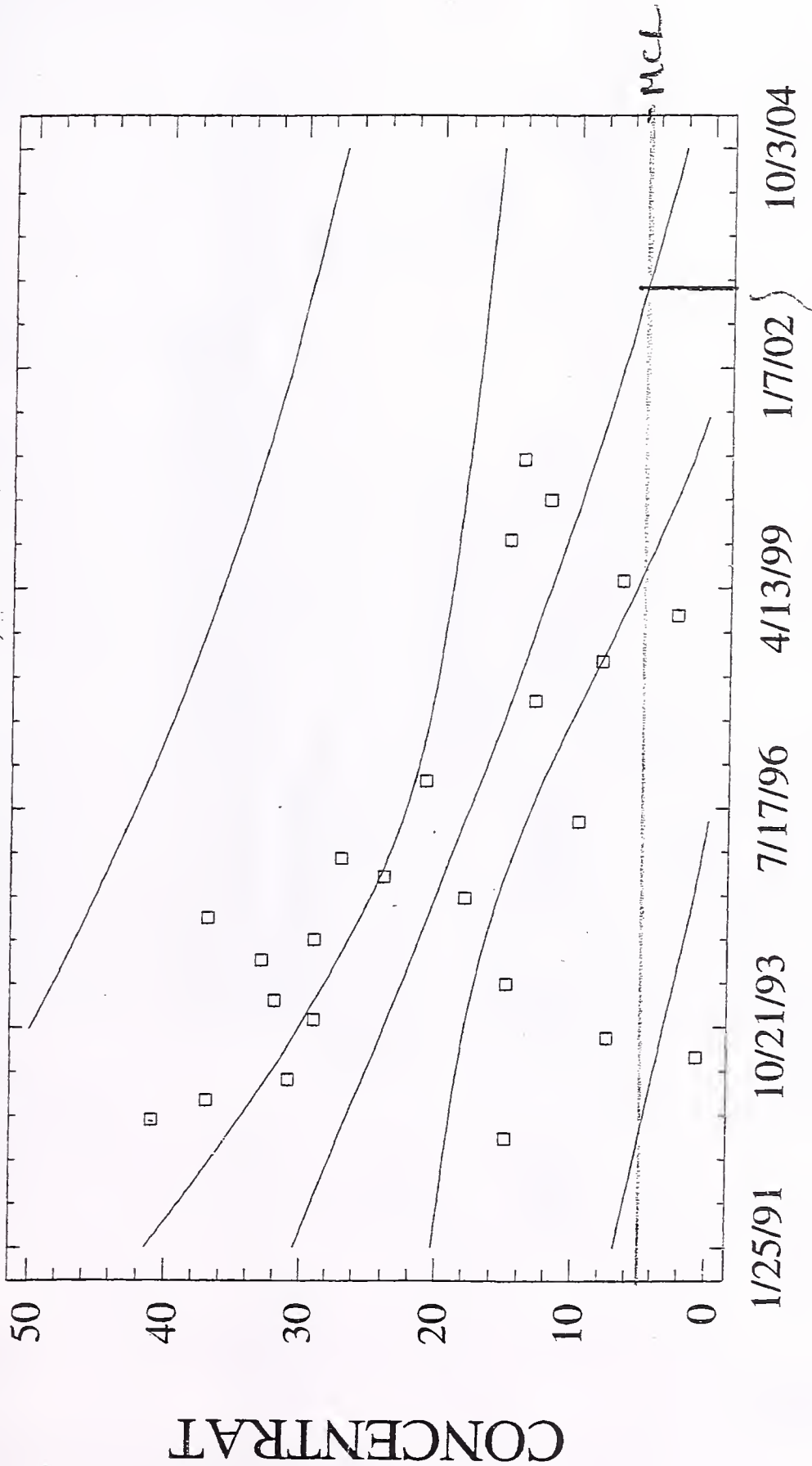
TETRACHLOROETHENE
 CONCENTRATIONS
 FOR WELL 89-6

AutoCad FILE: PCEL8811.DWG

FIGURE 10.0

Plot of Fitted Model 92-2 PCE

Power=0.798744, Shift=0.0



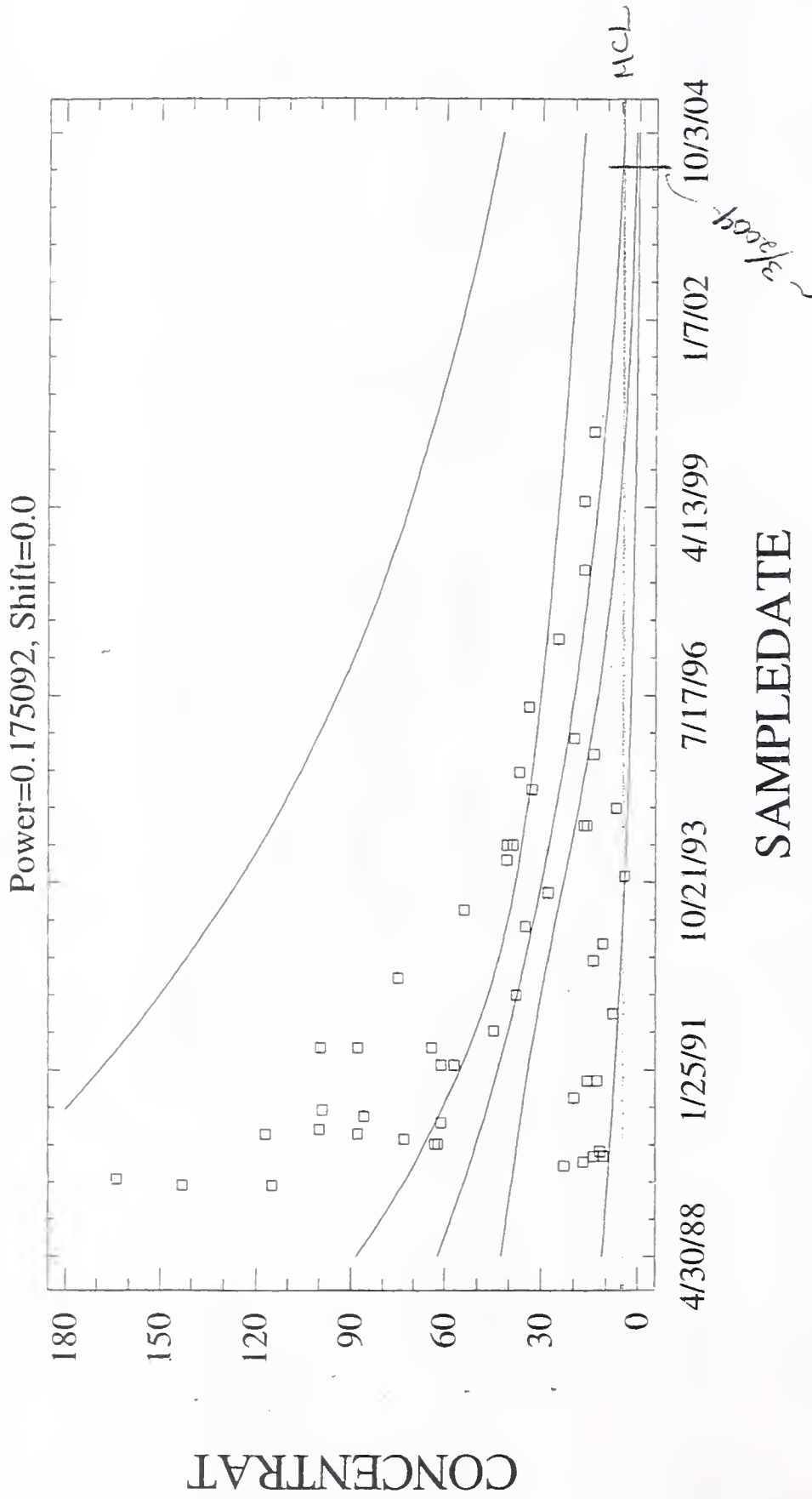
EXPONENTIAL REGRESSION LINE WITH
95% CONFIDENCE INTERVAL ENVELOPE
AVERAGE SLOPE OF MEAN IN $\mu\text{g/L/YEAR}$ = -3.2
ACTUAL DECLINE OBSERVED = 66%

Solid line is the estimate of the mean concentration over time, statistically derived from the data collected to date.

Pair of dotted lines delineates the envelope containing the means of the data points at each point in time with a 95% degree of statistical confidence. I.E. the solid line described above could vary anywhere within this inner envelope.

ESTIMATED TIME FRAME FOR COMPLIANCE WITH MCL LEVEL 2003	THE BURLINGTON NORTHERN & SANTA FE RAILWAY COMPANY		LIVINGSTON RAIL YARD 2000 ANNUAL GROUNDWATER REPORT		TETRACHLOROETHENE CONCENTRATIONS FOR WELL 92-2	
	ENVIROCON, INC.		AutoCad FILE: PCEL8811.DWG		FIGURE 11.0	

Plot of Fitted Model LS-11 PCE



EXPONENTIAL REGRESSION LINE WITH
95% CONFIDENCE INTERVAL ENVELOPE
AVERAGE SLOPE OF MEAN IN ug/L/YEAR = -3.9
ACTUAL DECLINE OBSERVED = 92%

Solid line is the estimate of the mean concentration over time, statistically derived from the data collected to date.

Pair of dotted lines delineates the envelope containing the means of the data points at each point in time with a 95% degree of statistical confidence. I.E. the solid line described above could vary anywhere within this inner envelope.

ESTIMATED TIME FRAME FOR
COMPLIANCE WITH MCL LEVEL
2004

THE BURLINGTON NORTHERN &
SANTA FE RAILWAY COMPANY

ENVIROCON, INC.

LIVINGSTON RAIL YARD
2000 ANNUAL
GROUNDWATER REPORT

AutoCad FILE: PCEL8811.DWG

TETRACHLOROETHENE
CONCENTRATIONS
FOR WELL LS-11

FIGURE 12.0

SHOP
COMPLEX

89-3

89-9

L-87-5

APPROXIMATE
FREE AND RESIDUAL
PRODUCT AREA

WWTP

RW-3 HRO-13

HRO-12

RW-1

HRO-10 L-87-2 LP2-100
HRO-9 ND

HRO-14 RW-2

RW-4 HRO-21

RW-9

L-87-6

L-88-13
ND

HRO-22 HRO-23

RW-8

L-87-8

RW-6

0.70

RW-4

0.75

L-87-7

0.22

RW-7

HRO-24

HRO-20

HRO-7

0.01

HRO-6

0.04

L-87-4

ND

92-3

95-1
LS-7 ND

LG-11
ND
~1000 ft

LEGEND:

RW-7 MONITORING WELL LOCATION
◇ APPARENT FREE PRODUCT
0.04 THICKNESS MEASUREMENT IN FEET

ND NO PRODUCT DETECTED
<0.01 TRACE OF PRODUCT DETECTED
BUT LESS THAN RESOLUTION
OF PRODUCT PROBE

200 0 200
SCALE IN FEET

THE BURLINGTON NORTHERN &
SANTA FE RAILWAY COMPANY

ENVIROCON, INC.

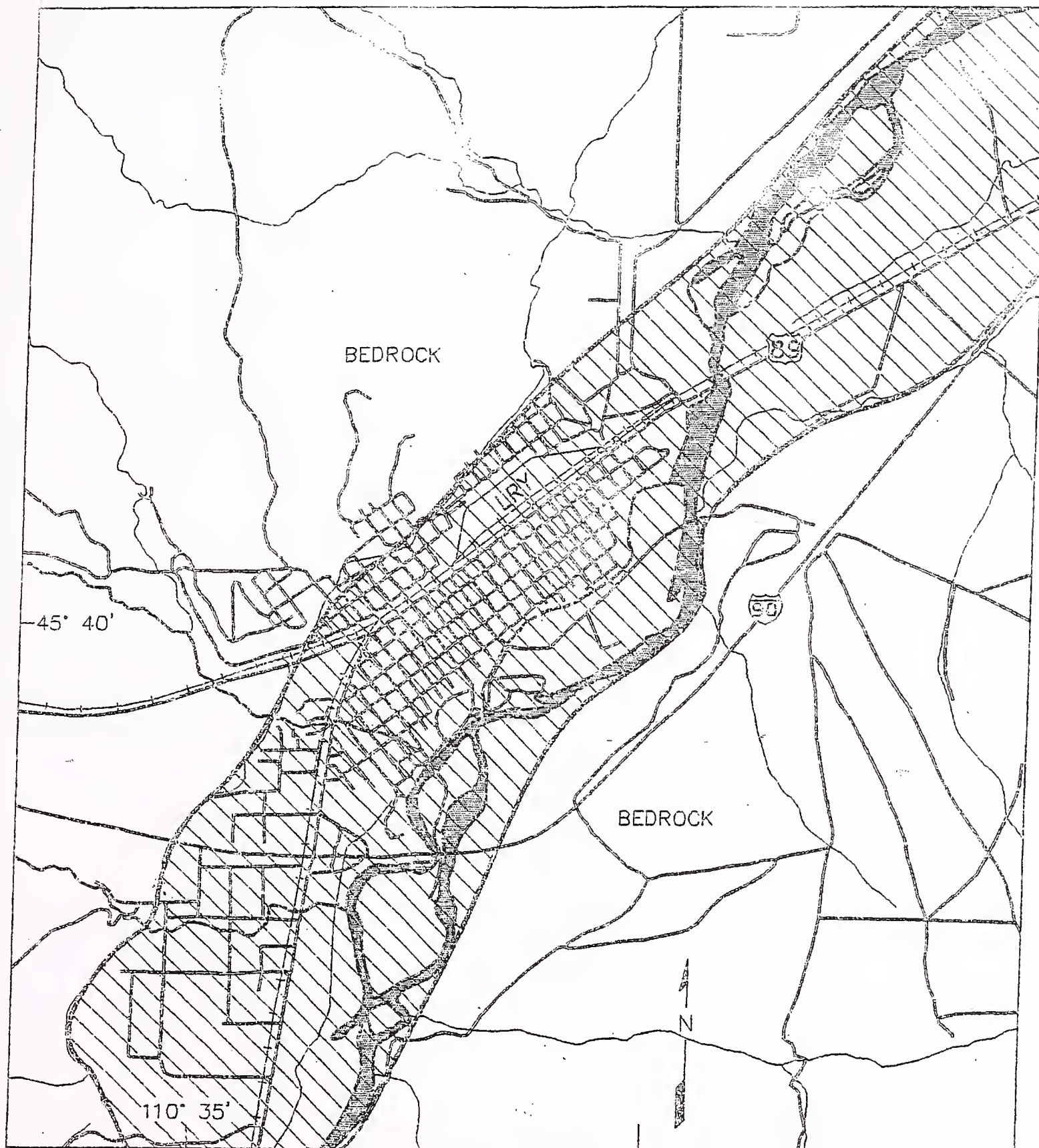
LIVINGSTON RAILYARD
2000 ANNUAL
GROUND WATER REPORT

140101.F02

MAY & JUNE 2000
APPARENT FREE PRODUCT
THICKNESS MEASUREMENTS

10/30/99

FIGURE 13.0



BURLINGTON NORTHERN

ENVIROCON, INC.

GROUND WATER SECTION
LIVINGSTON RAILYARD
REMEDIAL INVESTIGATION

AutoCAD FILE: GWRI-1.DWG_B

APPROXIMATE AREA
OF
LIVINGSTON AQUIFER

8/27/91

FIGURE 14.0

APPENDIX A

LABORATORY ANALYTICAL RESULTS

November 1999

NOVEMBER 1999

BNSF GROUND WATER SAMPLE RESULTS



ENERGY LABORATORIES, INC.

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140701

LABORATORY REPORT

Page: 1

To : Envirocon, Inc.
Address : M. McKinsey
PO Box 16655
Missoula, MT 59808

Lab No. : 58930-1 fs
Date : 12/02/99

GENERAL INFORMATION:

Laboratory No. : 58930-1
Sample Type : WATER
Sample Point : 140101-1697
Sample Date : 11/11/99
Sample Time :
Sample Received : 11/12/99

L-87-8

LABORATORY DATA:

	Result	Date Analyzed
Nitrogen, Nitrate.....(mg/l).....	0.32	11/12/99
Methane.....(mg/l).....	0.0011	11/15/99
Ferrous Iron.....(mg/l).....	1.90	11/17/99

Lab Nos. 99-58930-1

QUALITY ASSURANCE DATA PACKAGE

This report includes the results of quality assurance tests performed with the sample analyses. They are performed to determine if the methodology is in control and to monitor the laboratory's ability to produce accurate and precise results.

<u>Constituents</u>	Duplicate Analysis		Spiked	Blank Analysis, mg/l (ppm)	-----Calibration Verification-----		Date Analyzed
	-----mg/l (ppm)-----		Analysis, %		Sample Analysis, mg/l (ppm)	Acceptance Range, mg/l (ppm)	
	<u>Original</u>	<u>Duplicate</u>	<u>Recovery</u>		<u>mg/l (ppm)</u>	<u>mg/l (ppm)</u>	
Nitrogen, Nitrate	<0.05	<0.05	103	<0.05	0.54	0.45-0.55	11/12/99
Methane	N/A	N/A	N/A	<0.0002	0.0028	0.0026-0.0028	11/15/99
Ferrous Iron	3.20	3.31	86	<0.03	4.55	4.50-5.50	11/17/99

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Client: Envirocon, Inc.

Date Sampled: 11-NOV-99 00:00

Date Received: 12-NOV-99

Analysis Date: 20-NOV-1999 05:40

File: /chem/5971A.i/vall1999.b/nov192701027.d

Project Info: PROJ. NO. 140101, LRY

Sample Info: 1697

Lab No.: 001-99-58930

Report Date: 11/24/99 14:01

Extraction Method: EPA 5030

Sample Matrix: WATER; pH= < 2

**EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT**

=====

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
=====	=====	=====	=====
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	5.8	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	1.7	
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	3.3	
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U
Trichlorofluoromethane	75-69-4	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	10.5	105	74--120
Toluene d8	10.0	9.87	99	80--120
p-Bromofluorobenzene	10.0	9.76	98	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: S Reviewing Supervisor: nm

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Client: Envirocon, Inc.

Date Sampled: 11-NOV-99 00:00

Date Received: 12-NOV-99

Analysis Date: 20-NOV-1999 06:16

File: /chem/5971A.i/va111999.b/nov192801028.d

Project Info: PROJ. NO. 140101, LRY

Sample Info: 1698

Lab No.: 002-99-58930

Report Date: 11/24/99 14:01

Extraction Method: EPA 5030

Sample Matrix: WATER; pH= < 2

94-1

**EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT**

=====

CONCENTRATION UNITS = ug/L			
COMPOUNDS	CAS NO.	RESULT	QUALIFIER
=====	=====	=====	=====
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	1.4	
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U
Trichlorofluoromethane	75-69-4	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	10.3	103	74--120
Toluene d8	10.0	10.2	102	80--120
p-Bromofluorobenzene	10.0	10.0	100	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: *AS* Reviewing Supervisor: *M*

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com

Client: Envirocon, Inc.

Date Sampled: 11-NOV-99 00:00

Date Received: 12-NOV-99

Analysis Date: 21-NOV-1999 18:55

File: /chem/5971A.i/val12199.b/nov210501005.d

Project Info: PROJ. NO. 140101, LRY

Sample Info: 1699

Lab No.: 003-99-58930

Report Date: 11/24/99 14:09

Extraction Method: EPA 5030

Sample Matrix: WATER; pH= < 2

89-3

**EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT**

=====

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
=====	=====	=====	=====
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	136	D
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	1.2	
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U
Trichlorofluoromethane	75-69-4	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	10.2	102	74--120
Toluene d8	10.0	10.1	101	80--120
p-Bromofluorobenzene	10.0	10.4	104	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

REPORT COMMENTS: None

Analyst: Reviewing Supervisor:

Quality Control Sample: Laboratory Reagent Blank 20-NOV-99 01:28

Report Date: 11/24/99 13:39

Extraction Method: EPA 5030

Sample Matrix: WATER

File: /chem/5971A.i/vall1999.b/nov192001020.d

Remarks: This Laboratory Reagent Blank Quality Control Sample was extracted and analyzed with your set of samples to determine if method analytes or other interferences are present in the laboratory environment, the reagents, or the apparatus.

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

=====

CONCENTRATION UNITS = ug/L			
COMPOUNDS	CAS NO.	RESULT	QUALIFIER
=====	=====	=====	=====
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U
Trichlorofluoromethane	75-69-4	<0.50	U

----- SURROGATE RECOVERY REPORT -----

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	10.5	105	74--120
Toluene d8	10.0	10.1	101	80--120
p-Bromofluorobenzene	10.0	10.1	101	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: Reviewing Supervisor:

Quality Control Sample: Laboratory Reagent Blank 21-NOV-99 17:45

Report Date: 11/22/99 18:55

Extraction Method: EPA 5030

Sample Matrix: WATER

File: /chem/5971A.i/val12199.b/nov210301003.d

Remarks: This Laboratory Reagent Blank Quality Control Sample was extracted and analyzed with your set of samples to determine if method analytes or other interferences are present in the laboratory environment, the reagents, or the apparatus.

EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT

CONCENTRATION UNITS = ug/L			
COMPOUNDS	CAS NO.	RESULT	QUALIFIER
=====	=====	=====	=====
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U
Trichlorofluoromethane	75-69-4	<0.50	U

----- SURROGATE RECOVERY REPORT -----

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	9.85	98	74--120
Toluene d8	10.0	10.2	102	80--120
p-Bromofluorobenzene	10.0	10.2	102	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: *ES* Reviewing Supervisor: *SM*

EPA METHOD 624 BLANK SPIKE REPORT

=====

Quality Control Sample: Reference Sample Analysis 19-NOV-1999 12:37

Report Date: 11/24/99 13:54

Extraction Method: EPA 5030

Sample Matrix: WATER

File: /chem/5971A.i/va111999.b/nov190301003.d

Remarks: This reference sample was spiked into a blank sample matrix then extracted and analyzed with your set of samples to determine if the methodology is in control and to monitor the laboratory's ability to produce accurate results.

CONCENTRATION UNITS = ug/L

Spike Compound	Added	Measured	%Rec	QC Limits
=====	=====	=====	=====	=====
Carbon tetrachloride	5.00	5.46	109	60--140
Chlorobenzene	5.00	4.92	98	60--140
1,2-Dichlorobenzene	5.00	4.60	92	60--140
1,4-Dichlorobenzene	5.00	4.93	99	60--140
1,2-Dichloroethane	5.00	5.41	108	60--140
1,1-Dichloroethene	5.00	5.26	105	60--140
cis-1,2-Dichloroethene	5.00	5.10	102	60--140
trans-1,2-Dichloroethene	5.00	5.27	105	60--140
1,2-Dichloropropane	5.00	4.47	89	60--140
Methylene chloride	5.00	5.13	103	60--140
Tetrachloroethene	5.00	5.13	103	60--140
1,1,1-Trichloroethane	5.00	5.00	100	60--140
1,1,2-Trichloroethane	5.00	4.82	96	60--140
Trichloroethene	5.00	5.24	105	60--140
Vinyl chloride	5.00	5.82	116	60--140
2-Chloroethylvinyl ether	5.00	5.00	100	60--140
Bromodichloromethane	5.00	5.04	101	60--140
Bromoform	5.00	5.19	104	60--140
Chlorodibromomethane	5.00	5.19	104	60--140
Chloroform	5.00	5.02	100	60--140
Bromomethane	5.00	5.42	108	60--140
Chloroethane	5.00	5.48	110	60--140
Chloromethane	5.00	5.84	117	60--140
2-Chlorotoluene	5.00	4.67	93	60--140
1,3-Dichlorobenzene	5.00	4.78	96	60--140
Dichlorodifluoromethane	5.00	6.83	137	60--140
1,1-Dichloroethane	5.00	5.14	103	60--140
cis-1,3-Dichloropropene	5.00	4.93	99	60--140
trans-1,3-Dichloropropene	5.00	5.00	100	60--140
1,1,2,2-Tetrachloroethane	5.00	4.65	93	60--140
Trichlorofluoromethane	5.00	5.87	117	60--140

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	11.2	112	74--120
Toluene d8	10.0	10.2	102	80--120
p-Bromofluorobenzene	10.0	9.80	98	80--120

REPORT COMMENTS: None

Analyst: Reviewing Supervisor:

Date: 12-NOV-99

Received by: Krystal Simcox

Logged In by: Krystal Simcox

SAMPLE CONDITION QA/QC REPORT

This report provides information about the condition of the sample(s)
and associated sample custody information on receipt at the laboratory.

Chain of Custody Form
Completed & Signed

Yes Comments: _____

Chain of Custody Seal

Yes Comments: _____

Intact

Yes Comments: _____

Signature Match Chain of Custody vs. Seal

Yes Comments: _____

Samples Received Cold

Yes Comments: _____

Samples Received Within Holding Time

Yes Comments: _____

Samples Received in Proper Containers

Yes Comments: _____

Samples Received Properly Preserved

Yes Comments: _____

Samples requiring analysis for volatile organics are tested for proper preservation at the time of analysis.
Any preservation problems encountered for these samples are noted on the analytical parameter report pages.

Client notified about sample discrepancies:

Who: _____ By: _____ Date/Time: _____

Method of Shipping: Fed Ex

Additional comments: _____

[illegible]



ENERGY LABORATORIES, INC.

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December 2, 1999

Michael McKinsey
Envirocon, Inc.
P.O. Box 16655
Missoula, MT 59808

Dear Michael:

On November 12, 1999, these samples, represented by our laboratory numbers 001-99-58930 through 003-99-58930, were submitted to our laboratory for analysis.

The test results and quality assurance were reviewed and approved by the undersigned.

Reviewed by:

A handwritten signature in black ink, appearing to read "W. J. Phipps", written over a horizontal line.



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LABORATORY REPORT

Page: 1

To : Envirocon, Inc.
Address : M. McKinsey
PO Box 16655
Missoula, MT 59808

Lab No. : 58867-3 fs
Date : 12/02/99

GENERAL INFORMATION:

Laboratory No. : 58867-3
Sample Type : WATER
Sample Point : 140101-1695
Sample Date : 11/10/99
Sample Time :
Sample Received : 11/11/99

L-88-10

LABORATORY DATA:

	Result	Date Analyzed
Nitrogen, Nitrate.....(mg/l).....	0.11	11/11/99
Methane.....(mg/l).....	0.0003	11/11/99
Ferrous Iron.....(mg/l).....	<0.03	11/12/99



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LABORATORY REPORT

Page: 1

To : Envirocon, Inc.
Address : M. McKinsey
PO Box 16655
Missoula, MT 59808

Lab No. : 58867-4 fs
Date : 12/02/99

GENERAL INFORMATION:

Laboratory No. : 58867-4
Sample Type : WATER
Sample Point : 140101-1693
Sample Date : 11/10/99
Sample Time :
Sample Received : 11/11/99

L-87-7

LABORATORY DATA:

	Result	Date Analyzed
Nitrogen, Nitrate.....(mg/l).....	<0.05	11/11/99
Methane.....(mg/l).....	<0.0002	11/11/99
Ferrous Iron.....(mg/l).....	0.14	11/12/99



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LABORATORY REPORT

Page: 1

To : Envirocon, Inc.
Address : M. McKinsey
PO Box 16655
Missoula, MT 59808

Lab No. : 58867-5 fs
Date : 12/02/99

GENERAL INFORMATION:

Laboratory No. : 58867-5
Sample Type : WATER
Sample Point : 140101-1694
Sample Date : 11/10/99
Sample Time :
Sample Received : 11/11/99

L-88-13

LABORATORY DATA:

	Result	Date Analyzed
Nitrogen, Nitrate.....(mg/l).....	0.53	11/11/99
Methane.....(mg/l).....	0.0013	11/11/99
Ferrous Iron.....(mg/l).....	<0.03	11/12/99



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LABORATORY REPORT

Page: 1

To : Envirocon, Inc.
Address : M. McKinsey
PO Box 16655
Missoula, MT 59808

Lab No. : 58867-6 fs
Date : 12/02/99

GENERAL INFORMATION:

Laboratory No. : 58867-6
Sample Type : WATER
Sample Point : 140101-1696
Sample Date : 11/10/99
Sample Time :
Sample Received : 11/11/99

92-3

LABORATORY DATA:

	Result	Date Analyzed
Nitrogen, Nitrate..... (mg/l).....	0.85	11/11/99
Methane..... (mg/l).....	0.0017	11/11/99
Ferrous Iron..... (mg/l).....	<0.03	11/12/99

Lab Nos. 99-58867-2-6

QUALITY ASSURANCE DATA PACKAGE

This report includes the results of quality assurance tests performed with the sample analyses. They are performed to determine if the methodology is in control and to monitor the laboratory's ability to produce accurate and precise results.

<u>Constituents</u>	<u>Duplicate Analysis</u> -----mg/l (ppm)-----		<u>Spiked</u> <u>Analysis,</u> %	<u>Blank</u> <u>Analysis,</u> mg/l (ppm)	<u>-----Calibration Verification-----</u> <u>Sample</u> <u>Analysis,</u> mg/l (ppm)		<u>Acceptance</u> <u>Range,</u> mg/l (ppm)	<u>Date</u> <u>Analyzed</u>
	<u>Original</u>	<u>Duplicate</u>	<u>Recovery</u>					
Nitrogen, Nitrate	0.85	0.85	98	<0.05	2.37		2.04-2.56	11/11/99
Methane	N/A	✓ N/A	N/A	<0.0002	0.0028 ✓		0.0026-0.0030	11/11/99
Ferrous Iron	1.63	1.62	100	<0.03	4.91		4.50-5.50	11/12/99

Date: 11-NOV-99

Received by: Randa Hoelscher

Logged In by: Randa Hoelscher

SAMPLE CONDITION QA/QC REPORT

This report provides information about the condition of the sample(s)
and associated sample custody information on receipt at the laboratory.

Chain of Custody Form
Completed & Signed

Yes Comments: _____

Chain of Custody Seal

Yes Comments: _____

Intact

Yes Comments: _____

Signature Match Chain of Custody vs. Seal

Yes Comments: _____

Samples Received Cold

Yes Comments: _____

Samples Received Within Holding Time

Yes Comments: _____

Samples Received in Proper Containers

Yes Comments: _____

Samples Received Properly Preserved

Yes Comments: _____

Samples requiring analysis for volatile organics are tested for proper preservation at the time of analysis.
Any preservation problems encountered for these samples are noted on the analytical parameter report pages.

Client notified about sample discrepancies:

Who: _____ By: _____ Date/Time: _____

Method of Shipping: Greyhound 151 738 177 8

Additional comments: _____

Signatures



ENERGY LABORATORIES, INC.

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December 2, 1999

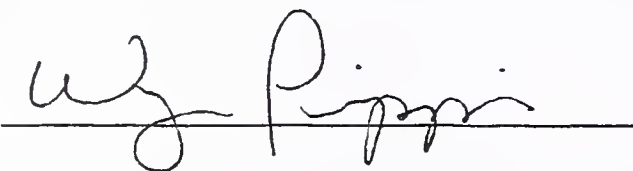
Michael McKinsey
Envirocon, Inc.
P.O. Box 16655
Missoula, MT 59808

Dear Michael:

On November 11, 1999, these samples, represented by our laboratory numbers 001-99-58867 through 006-99-58867, were submitted to our laboratory for analysis.

The test results and quality assurance were reviewed and approved by the undersigned.

Reviewed by:

A handwritten signature in black ink, appearing to read "W. J. Pippin", written over a horizontal line.



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140101

Client: Envirocon, Inc.
Date Sampled: 08-NOV-99 00:00
Date Received: 10-NOV-99
Analysis Date: 19-NOV-99 21:50
File: /chem/5971A.i/val11999.b/nov191401014.d
Project Info: PROJ. #140101, LRY
Sample Info: 140101-1685

Lab No.: 001-99-58824
Report Date: 11/24/99 13:39
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

89-4

EPA METHOD 624 VOLATILE ORGANICS ANALYSIS REPORT

=====

CONCENTRATION UNITS = ug/L			
COMPOUNDS	CAS NO.	RESULT	QUALIFIER
=====	=====	=====	=====
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	9.1	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	88	D
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	1.8	
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U
Trichlorofluoromethane	75-69-4	<0.50	U

----- SURROGATE RECOVERY REPORT -----				
Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	10.5	105	74--120
Toluene d8	10.0	10.2	102	80--120
p-Bromofluorobenzene	10.0	10.1	101	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

REPORT COMMENTS: None

Analyst: C Reviewing Supervisor: ND



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Client: Envirocon, Inc.

Date Sampled: 08-NOV-99 00:00

Date Received: 10-NOV-99

Analysis Date: 19-NOV-99 22:26

File: /chem/5971A.i/va111999.b/nov191501015.d

Project Info: PROJ. #140101, LRY

Sample Info: 140101-1686

Lab No.: 002-99-58824

Report Date: 11/24/99 13:39

Extraction Method: EPA 5030

Sample Matrix: WATER; pH= < 2

89-4 - duplicate

EPA METHOD 624 VOLATILE ORGANICS ANALYSIS REPORT

=====

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
=====	=====	=====	=====
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	8.9	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	76	D
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	1.8	
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U
Trichlorofluoromethane	75-69-4	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	10.4	104	74--120
Toluene d8	10.0	10.5	105	80--120
p-Bromofluorobenzene	10.0	9.85	98	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

REPORT COMMENTS: None

Analyst: Reviewing Supervisor:



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Client: Envirocon, Inc.

Date Sampled: 08-NOV-99 00:00

Date Received: 10-NOV-99

Analysis Date: 19-NOV-99 23:03

File: /chem/5971A.i/val11999.b/nov191601016.d

Project Info: PROJ. #140101, LRY

Sample Info: 140101-1687

Lab No.: 003-99-58824

Report Date: 11/24/99 13:39

Extraction Method: EPA 5030

Sample Matrix: WATER; pH= < 2

EPA METHOD 624 VOLATILE ORGANICS ANALYSIS REPORT

=====

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
=====	=====	=====	=====
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	0.68	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	15	
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	1.3	
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U
Trichlorofluoromethane	75-69-4	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	10.6	106	74--120
Toluene d8	10.0	10.1	101	80--120
p-Bromofluorobenzene	10.0	10.0	100	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: C Reviewing Supervisor: MD



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Client: Envirocon, Inc.
Date Sampled: 09-NOV-99 00:00
Date Received: 10-NOV-99
Analysis Date: 20-NOV-1999 02:04
File: /chem/5971A.i/vall1999.b/nov192101021.d
Project Info: PROJ. #140101, LRY
Sample Info: 140101-1688

Lab No.: 004-99-58824
Report Date: 11/24/99 14:04
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= 4

EPA METHOD 624 VOLATILE ORGANICS ANALYSIS REPORT

90-3

CONCENTRATION UNITS = ug/L			
COMPOUNDS	CAS NO.	RESULT	QUALIFIER
=====	=====	=====	=====
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	1.7	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	11	
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	2.0	
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U
Trichlorofluoromethane	75-69-4	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	10.8	108	74--120
Toluene d8	10.0	10.1	101	80--120
p-Bromofluorobenzene	10.0	9.96	100	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

Note: The sample was not properly acidified to a pH <2. The sample pH as received was 4.

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: SD Reviewing Supervisor: mm



ENERGY LABORATORIES, INC.

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Client: Envirocon, Inc.

Date Sampled: 09-NOV-99 00:00

Date Received: 10-NOV-99

Analysis Date: 20-NOV-99 02:40

File: /chem/5971A.i/vall1999.b/nov192201022.d

Project Info: PROJ. #140101, LRY

Sample Info: 140101-1689

Lab No.: 005-99-58824

Report Date: 11/24/99 13:40

Extraction Method: EPA 5030

Sample Matrix: WATER; pH= < 2

EPA METHOD 624 VOLATILE ORGANICS ANALYSIS REPORT

=====

CONCENTRATION UNITS = ug/L			
COMPOUNDS	CAS NO.	RESULT	QUALIFIER
=====	=====	=====	=====
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	12	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	152	D
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	0.17J
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U
Trichlorofluoromethane	75-69-4	<0.50	U

----- SURROGATE RECOVERY REPORT -----

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	11.0	110	74--120
Toluene d8	10.0	9.79	98	80--120
p-Bromofluorobenzene	10.0	9.75	98	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

D= Value was derived from a 20 times dilution.

J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: None

Analyst: C Reviewing Supervisor: 90



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Client: Envirocon, Inc.

Date Sampled: 09-NOV-99 00:00

Date Received: 10-NOV-99

Analysis Date: 20-NOV-99 03:17

File: /chem/5971A.i/vall1999.b/nov192301023.d

Project Info: PROJ. #140101, LRY

Sample Info: 140101-1690

Lab No.: 006-99-58824

Report Date: 11/24/99 13:40

Extraction Method: EPA 5030

Sample Matrix: WATER; pH= < 2

89-9

EPA METHOD 624 VOLATILE ORGANICS ANALYSIS REPORT

=====

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
=====	=====	=====	=====
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	1.1	
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	46	D
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	2.6	
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U
Trichlorofluoromethane	75-69-4	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	10.9	109	74--120
Toluene d8	10.0	9.94	99	80--120
p-Bromofluorobenzene	10.0	9.73	97	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

REPORT COMMENTS: None

Analyst: Reviewing Supervisor:

Quality Control Sample: Laboratory Reagent Blank 19-NOV-1999 13:49

Report Date: 11/24/99 13:55

Extraction Method: EPA 5030

Sample Matrix: WATER

File: /chem/5971A.i/va111999.b/nov190501005.d

Remarks: This Laboratory Reagent Blank Quality Control Sample was extracted and analyzed with your set of samples to determine if method analytes or other interferences are present in the laboratory environment, the reagents, or the apparatus.

EPA METHOD 624

VOLATILE ORGANICS ANALYSIS REPORT

=====

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
=====	=====	=====	=====
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U
Trichlorofluoromethane	75-69-4	<0.50	U

----- SURROGATE RECOVERY REPORT -----

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	10.6	106	74--120
Toluene d8	10.0	10.3	103	80--120
p-Bromofluorobenzene	10.0	10.0	100	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: Reviewing Supervisor:

Quality Control Sample: Laboratory Reagent Blank 20-NOV-99 01:28

Report Date: 11/24/99 13:39

Extraction Method: EPA 5030

Sample Matrix: WATER

File: /chem/5971A.i/val11999.b/nov192001020.d

Remarks: This Laboratory Reagent Blank Quality Control Sample was extracted and analyzed with your set of samples to determine if method analytes or other interferences are present in the laboratory environment, the reagents, or the apparatus.

EPA METHOD 624

VOLATILE ORGANICS ANALYSIS REPORT

=====

CONCENTRATION UNITS = ug/L			
COMPOUNDS	CAS NO.	RESULT	QUALIFIER
=====	=====	=====	=====
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U
Trichlorofluoromethane	75-69-4	<0.50	U

----- SURROGATE RECOVERY REPORT -----

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	10.5	105	74--120
Toluene d8	10.0	10.1	101	80--120
p-Bromofluorobenzene	10.0	10.1	101	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: Reviewing Supervisor:

EPA METHOD 624 BLANK SPIKE REPORT

=====

Quality Control Sample: Reference Sample Analysis 19-NOV-1999 12:37

Report Date: 11/24/99 13:54

Extraction Method: EPA 5030

Sample Matrix: WATER

File: /chem/5971A.i/va111999.b/nov190301003.d

Remarks: This reference sample was spiked into a blank sample matrix then extracted and analyzed with your set of samples to determine if the methodology is in control and to monitor the laboratory's ability to produce accurate results.

CONCENTRATION UNITS = ug/L

Spike Compound	Added	Measured	%Rec	QC Limits
=====	=====	=====	=====	=====
Carbon tetrachloride	5.00	5.46	109	60--140
Chlorobenzene	5.00	4.92	98	60--140
1,2-Dichlorobenzene	5.00	4.60	92	60--140
1,4-Dichlorobenzene	5.00	4.93	99	60--140
1,2-Dichloroethane	5.00	5.41	108	60--140
1,1-Dichloroethene	5.00	5.26	105	60--140
cis-1,2-Dichloroethene	5.00	5.10	102	60--140
trans-1,2-Dichloroethene	5.00	5.27	105	60--140
1,2-Dichloropropane	5.00	4.47	89	60--140
Methylene chloride	5.00	5.13	103	60--140
Tetrachloroethene	5.00	5.13	103	60--140
1,1,1-Trichloroethane	5.00	5.00	100	60--140
1,1,2-Trichloroethane	5.00	4.82	96	60--140
Trichloroethene	5.00	5.24	105	60--140
Vinyl chloride	5.00	5.82	116	60--140
2-Chloroethylvinyl ether	5.00	5.00	100	60--140
Bromodichloromethane	5.00	5.04	101	60--140
Bromoform	5.00	5.19	104	60--140
Chlorodibromomethane	5.00	5.19	104	60--140
Chloroform	5.00	5.02	100	60--140
Bromomethane	5.00	5.42	108	60--140
Chloroethane	5.00	5.48	110	60--140
Chloromethane	5.00	5.84	117	60--140
2-Chlorotoluene	5.00	4.67	93	60--140
1,3-Dichlorobenzene	5.00	4.78	96	60--140
Dichlorodifluoromethane	5.00	6.83	137	60--140
1,1-Dichloroethane	5.00	5.14	103	60--140
cis-1,3-Dichloropropene	5.00	4.93	99	60--140
trans-1,3-Dichloropropene	5.00	5.00	100	60--140
1,1,2,2-Tetrachloroethane	5.00	4.65	93	60--140
Trichlorofluoromethane	5.00	5.87	117	60--140

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	11.2	112	74--120
Toluene d8	10.0	10.2	102	80--120
p-Bromofluorobenzene	10.0	9.80	98	80--120

REPORT COMMENTS: None

Analyst: Reviewing Supervisor:

EPA METHOD 624 MATRIX SPIKE REPORT

=====

Quality Control Sample: Matrix Spike Analysis 21-NOV-1999 23:00

Lab No.: 004-99-58824ms

Report Date: 11/24/99 14:16

Extraction Method: EPA 5030

Sample Matrix: WATER

File: /chem/5971A.i/va112199.b/nov211201012.d

Remarks: These compounds were spiked into the sample matrix to determine if the sample matrix contributes bias to the analytical results and to monitor the accuracy of the methodology.

CONCENTRATION UNITS = ug/L

Spike Compound	Spike Added	Sample Concentration	Matrix Spike Concentration	MS %Rec	QC Limits
=====	=====	=====	=====	=====	=====
Carbon tetrachloride	5.00	<0.500	5.29	106	60--140
Chlorobenzene	5.00	<0.500	5.16	103	60--140
1,2-Dichlorobenzene	5.00	<0.500	4.92	98	60--140
1,4-Dichlorobenzene	5.00	<0.500	5.09	102	60--140
1,2-Dichloroethane	5.00	<0.500	5.68	114	60--140
1,1-Dichloroethene	5.00	<0.500	5.30	106	60--140
cis-1,2-Dichloroethene	5.00	1.67	6.93	105	60--140
trans-1,2-Dichloroethene	5.00	<0.500	5.40	108	60--140
1,2-Dichloropropane	5.00	<0.500	4.76	95	60--140
Methylene chloride	5.00	<0.500	5.27	105	60--140
Tetrachloroethene	5.00	11	16.3	106	60--140
1,1,1-Trichloroethane	5.00	<0.500	5.02	100	60--140
1,1,2-Trichloroethane	5.00	<0.500	5.10	102	60--140
Trichloroethene	5.00	2.0	7.17	103	60--140
Vinyl chloride	5.00	<0.500	5.59	112	60--140
2-Chloroethylvinyl ether	COMPOUND NOT DETECTED				
Bromodichloromethane	5.00	<0.500	5.35	107	60--140
Bromoform	5.00	<0.500	5.23	105	60--140
Chlorodibromomethane	5.00	<0.500	5.16	103	60--140
Chloroform	5.00	<0.500	5.08	102	60--140
Bromomethane	5.00	<0.500	4.90	98	60--140
Chloroethane	5.00	<0.500	5.37	107	60--140
Chloromethane	5.00	<0.500	5.73	115	60--140
2-Chlorotoluene	5.00	<0.500	4.98	100	60--140
1,3-Dichlorobenzene	5.00	<0.500	4.88	98	60--140
Dichlorodifluoromethane	5.00	<0.500	6.72	134	60--140
1,1-Dichloroethane	5.00	<0.500	5.25	105	60--140
cis-1,3-Dichloropropene	5.00	<0.500	4.90	98	60--140
trans-1,3-Dichloropropene	5.00	<0.500	5.10	102	60--140
1,1,2,2-Tetrachloroethane	5.00	<0.500	4.98	100	60--140
Trichlorofluoromethane	5.00	<0.500	5.79	116	60--140

----- SURROGATE RECOVERY REPORT -----

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	10.9	109	74--120
Toluene d8	10.0	10.2	102	80--120
p-Bromofluorobenzene	10.0	9.83	98	80--120

REPORT COMMENTS: None

Analyst: Reviewing Supervisor:



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Client: Envirocon, Inc.
Date Sampled: 09-NOV-99 00:00
Date Received: 11-NOV-99
Analysis Date: 20-NOV-99 03:53
File: /chem/5971A.i/va111999.b/nov192401024.d
Project Info: PROJ. #140101, LRY
Sample Info: 140101-1691

Lab No.: 001-99-58867
Report Date: 11/24/99 13:41
Extraction Method: EPA 5030
Sample Matrix: WATER; pH= < 2

EPA METHOD 624 VOLATILE ORGANICS ANALYSIS REPORT

=====

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
=====	=====	=====	=====
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	0.31J
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U
Trichlorofluoromethane	75-69-4	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	10.8	108	74--120
Toluene d8	10.0	10.0	100	80--120
p-Bromofluorobenzene	10.0	9.65	97	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: None

Analyst: EB Reviewing Supervisor: MJ



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Client: Envirocon, Inc.

Date Sampled: 10-NOV-99 00:00

Date Received: 11-NOV-99

Analysis Date: 20-NOV-1999 04:29

File: /chem/5971A.i/va111999.b/nov192501025.d

Project Info: PROJ. #140101, LRY

Sample Info: 140101-1692

Lab No.: 002-99-58867

Report Date: 11/24/99 14:04

Extraction Method: EPA 5030

Sample Matrix: WATER; pH= 7

EPA METHOD 624 VOLATILE ORGANICS ANALYSIS REPORT

=====

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
=====	=====	=====	=====
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	33	D
1,2-Dichlorobenzene	95-50-1	1.9	
1,4-Dichlorobenzene	106-46-7	4.1	
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	28	D
trans-1,2-Dichloroethene	156-60-5	1.2	
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	1.1	
Vinyl chloride	75-01-4	21	D
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	51	D
1,3-Dichlorobenzene	541-73-1	0.59	
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U
Trichlorofluoromethane	75-69-4	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	10.9	109	74--120
Toluene d8	10.0	9.95	99	80--120
p-Bromofluorobenzene	10.0	9.45	94	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

Note: The sample was not properly acidified to a pH <2. The sample pH as received was 7.

U= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

REPORT COMMENTS: None

Analyst: GO Reviewing Supervisor: mi

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Client: Envirocon, Inc.

Date Sampled: 10-NOV-99 00:00

Date Received: 11-NOV-99

Analysis Date: 20-NOV-99 05:05

File: /chem/5971A.i/va111999.b/nov192601026.d

Project Info: PROJ. #140101, LRY

Sample Info: 140101-1695

Lab No.: 003-99-58867

Report Date: 11/24/99 13:42

Extraction Method: EPA 5030

Sample Matrix: WATER; pH= < 2

**EPA METHOD 624
VOLATILE ORGANICS ANALYSIS REPORT**

=====

CONCENTRATION UNITS = ug/L

COMPOUNDS	CAS NO.	RESULT	QUALIFIER
=====	=====	=====	=====
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	2.8	
1,2-Dichlorobenzene	95-50-1	0.64	
1,4-Dichlorobenzene	106-46-7	1.1	
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	18	
trans-1,2-Dichloroethene	156-60-5	<0.50	0.31J
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	29	E
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	8.7	
Vinyl chloride	75-01-4	1.1	
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	1.0	
1,3-Dichlorobenzene	541-73-1	<0.50	0.29J
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U
Trichlorofluoromethane	75-69-4	<0.50	U

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	10.1	101	74--120
Toluene d8	10.0	10.2	102	80--120
p-Bromofluorobenzene	10.0	9.78	98	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

E= Estimated value. Amount exceeds calibration range. A dilution could not be performed due to loss of the second vial through laboratory error.

J= Estimated value. Present, but less than the limit of quantitation.

REPORT COMMENTS: None

Analyst: Reviewing Supervisor:

Quality Control Sample: Laboratory Reagent Blank 20-NOV-99 01:28

Report Date: 11/24/99 13:39

Extraction Method: EPA 5030

Sample Matrix: WATER

File: /chem/5971A.i/vall1999.b/nov192001020.d

Remarks: This Laboratory Reagent Blank Quality Control Sample was extracted and analyzed with your set of samples to determine if method analytes or other interferences are present in the laboratory environment, the reagents, or the apparatus.

EPA METHOD 624

VOLATILE ORGANICS ANALYSIS REPORT

=====

CONCENTRATION UNITS = ug/L			
COMPOUNDS	CAS NO.	RESULT	QUALIFIER
=====	=====	=====	=====
Carbon tetrachloride	56-23-5	<0.50	U
Chlorobenzene	108-90-7	<0.50	U
1,2-Dichlorobenzene	95-50-1	<0.50	U
1,4-Dichlorobenzene	106-46-7	<0.50	U
1,2-Dichloroethane	107-06-2	<0.50	U
1,1-Dichloroethene	75-35-4	<0.50	U
cis-1,2-Dichloroethene	156-59-2	<0.50	U
trans-1,2-Dichloroethene	156-60-5	<0.50	U
1,2-Dichloropropane	78-87-5	<0.50	U
Methylene chloride	75-09-2	<0.50	U
Tetrachloroethene	127-18-4	<0.50	U
1,1,1-Trichloroethane	71-55-6	<0.50	U
1,1,2-Trichloroethane	79-00-5	<0.50	U
Trichloroethene	79-01-6	<0.50	U
Vinyl chloride	75-01-4	<0.50	U
2-Chloroethylvinyl ether	110-75-8	<0.50	U
Bromodichloromethane	75-27-4	<0.50	U
Bromoform	75-25-2	<0.50	U
Chlorodibromomethane	124-48-1	<0.50	U
Chloroform	67-66-3	<0.50	U
Bromomethane	74-83-9	<0.50	U
Chloroethane	75-00-3	<0.50	U
Chloromethane	74-87-3	<0.50	U
2-Chlorotoluene	95-49-8	<0.50	U
1,3-Dichlorobenzene	541-73-1	<0.50	U
Dichlorodifluoromethane	75-71-8	<0.50	U
1,1-Dichloroethane	75-34-3	<0.50	U
cis-1,3-Dichloropropene	10061-01-5	<0.50	U
trans-1,3-Dichloropropene	10061-02-6	<0.50	U
1,1,2,2-Tetrachloroethane	79-34-5	<0.50	U
Trichlorofluoromethane	75-69-4	<0.50	U

----- SURROGATE RECOVERY REPORT -----

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	10.5	105	74--120
Toluene d8	10.0	10.1	101	80--120
p-Bromofluorobenzene	10.0	10.1	101	80--120

QUALIFIER CODE EXPLANATIONS AND NOTES:

U= Indicates compound was analyzed for but not detected.

REPORT COMMENTS: None

Analyst: S

Reviewing Supervisor: 277

EPA METHOD 624 BLANK SPIKE REPORT

=====

Quality Control Sample: Reference Sample Analysis 19-NOV-1999 12:37

Report Date: 11/24/99 13:54

Extraction Method: EPA 5030

Sample Matrix: WATER

File: /chem/5971A.i/va111999.b/nov190301003.d

Remarks: This reference sample was spiked into a blank sample matrix then extracted and analyzed with your set of samples to determine if the methodology is in control and to monitor the laboratory's ability to produce accurate results.

CONCENTRATION UNITS = ug/L

Spike Compound	Added	Measured	%Rec	QC Limits
=====	=====	=====	=====	=====
Carbon tetrachloride	5.00	5.46	109	60--140
Chlorobenzene	5.00	4.92	98	60--140
1,2-Dichlorobenzene	5.00	4.60	92	60--140
1,4-Dichlorobenzene	5.00	4.93	99	60--140
1,2-Dichloroethane	5.00	5.41	108	60--140
1,1-Dichloroethene	5.00	5.26	105	60--140
cis-1,2-Dichloroethene	5.00	5.10	102	60--140
trans-1,2-Dichloroethene	5.00	5.27	105	60--140
1,2-Dichloropropane	5.00	4.47	89	60--140
Methylene chloride	5.00	5.13	103	60--140
Tetrachloroethene	5.00	5.13	103	60--140
1,1,1-Trichloroethane	5.00	5.00	100	60--140
1,1,2-Trichloroethane	5.00	4.82	96	60--140
Trichloroethene	5.00	5.24	105	60--140
Vinyl chloride	5.00	5.82	116	60--140
2-Chloroethylvinyl ether	5.00	5.00	100	60--140
Bromodichloromethane	5.00	5.04	101	60--140
Bromoform	5.00	5.19	104	60--140
Chlorodibromomethane	5.00	5.19	104	60--140
Chloroform	5.00	5.02	100	60--140
Bromomethane	5.00	5.42	108	60--140
Chloroethane	5.00	5.48	110	60--140
Chloromethane	5.00	5.84	117	60--140
2-Chlorotoluene	5.00	4.67	93	60--140
1,3-Dichlorobenzene	5.00	4.78	96	60--140
Dichlorodifluoromethane	5.00	6.83	137	60--140
1,1-Dichloroethane	5.00	5.14	103	60--140
cis-1,3-Dichloropropene	5.00	4.93	99	60--140
trans-1,3-Dichloropropene	5.00	5.00	100	60--140
1,1,2,2-Tetrachloroethane	5.00	4.65	93	60--140
Trichlorofluoromethane	5.00	5.87	117	60--140

SURROGATE RECOVERY REPORT

Surrogate Compound	Added ug/L	Measured ug/L	%Rec	QC Limits
=====	=====	=====	=====	=====
1,2-Dichloroethane d4	10.0	11.2	112	74--120
Toluene d8	10.0	10.2	102	80--120
p-Bromofluorobenzene	10.0	9.80	98	80--120

REPORT COMMENTS: None

Analyst: S Reviewing Supervisor: MP

Date: 10-NOV-99

Received by: Randa Hoelscher

Logged In by: Randa Hoelscher

SAMPLE CONDITION QA/QC REPORT

This report provides information about the condition of the sample(s)
and associated sample custody information on receipt at the laboratory.

Chain of Custody Form
Completed & Signed

Yes Comments: _____

Chain of Custody Seal

Yes Comments: _____

Intact

Yes Comments: _____

Signature Match Chain of Custody vs. Seal

Yes Comments: _____

Samples Received Cold

Yes Comments: _____

Samples Received Within Holding Time

Yes Comments: _____

Samples Received in Proper Containers

Yes Comments: _____

Samples Received Properly Preserved

N/A Comments: _____

Samples requiring analysis for volatile organics are tested for proper preservation at the time of analysis.
Any preservation problems encountered for these samples are noted on the analytical parameter report pages.

Client notified about sample discrepancies:

Who: _____ By: _____ Date/Time: _____

Method of Shipping: Greyhound 151 738 172 3

Additional comments: _____

Signature _____



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November 30, 1999

Michael McKinsey
Envirocon, Inc.
P.O. Box 16655
Missoula, MT 59808

Dear Michael:

On November 10, 1999, these samples, represented by our laboratory numbers 001-99-58824 through 006-99-58824, were submitted to our laboratory for analysis.

The test results and quality assurance were reviewed and approved by the undersigned.

Reviewed by: _____

A handwritten signature in black ink, appearing to read "W. J. Pippin", written over a horizontal line.

May 2000

MAY 2000

BNSF GROUND WATER SAMPLE RESULTS

EPA METHOD 624

Client: Envirocon, Inc. *Travel Blank*
Sample ID: 140101-1700
Project Info: PROJ. #140101, LIVINGSTON RAIL YARD
Lab ID: 001-00-53981
Matrix: WATER

Date Reported: 06/09/00
Date Sampled: 5/16/00 0:00
Date Received: 05/22/00
Date Analyzed: 5/30/00 17:06

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION (µg/L)	LIMIT OF QUANTITATION(µg/L)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(µg/L)		PERCENT RECOVERY	ACCEPTANCE RANGE
	ADDED	MEASURED		
1,2-Dichloroethane d4	10	9.60	96	74-127
Toluene d8	10	10.5	105	80-120
p-Bromofluorobenzene	10	10.6	106	80-120

REPORT COMMENTS: None

Analyst: So/wn Reviewing Supervisor: mm

/chem/5971A.i/va053000.b/may301201012.d

EPA METHOD 624

Client: **Envirocon, Inc.** *89-2*
Sample ID: 140101-1701
Project Info: PROJ. #140101, LIVINGSTON RAIL YARD
Lab ID: 002-00-53981
Matrix: WATER

Date Reported: 06/09/00
Date Sampled: 5/16/00 0:00
Date Received: 05/22/00
Date Analyzed: 5/30/00 17:56

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION (µg/L)	LIMIT OF QUANTITATION(µg/L)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(µg/L)		PERCENT RECOVERY	ACCEPTANCE RANGE
	ADDED	MEASURED		
1,2-Dichloroethane d4	10	9.61	96	74-127
Toluene d8	10	10.6	106	80-120
p-Bromofluorobenzene	10	10.7	107	80-120

REPORT COMMENTS: None

Analyst: SO/wh Reviewing Supervisor: [Signature]

/chem/5971A.i/va053000.b/may301301013.d

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com**EPA METHOD 624**Client: Envirocon, Inc. **L-87-3**
Sample ID: 140101-1702
Project Info: PROJ. #140101, LIVINGSTON RAIL YARD
Lab ID: 003-00-53981
Matrix: WATERDate Reported: 06/09/00
Date Sampled: 5/16/00 0:00
Date Received: 05/22/00
Date Analyzed: 5/30/00 18:31

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION (µg/L)	LIMIT OF QUANTITATION(µg/L)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	6.0	0.50
156-60-5	trans-1,2-Dichloroethene	(0.39)(J)	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	54(D)	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	5.6	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

J= Estimated value. Present, but less than the limit of quantitation.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(µg/L)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	9.59	96	74-127
Toluene d8	10	10.2	102	80-120
p-Bromofluorobenzene	10	10.4	104	80-120

REPORT COMMENTS: None

Analyst: Sa/woj Reviewing Supervisor: mm

/chem/5971A.i/va053000.b/may301401014.d

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com**EPA METHOD 624**Client: Envirocon, Inc. **59-H**
Sample ID: 140101-1703
Project Info: PROJ. #140101, LIVINGSTON RAIL YARD
Lab ID: 004-00-53981
Matrix: WATERDate Reported: 06/09/00
Date Sampled: 5/16/00 0:00
Date Received: 05/22/00
Date Analyzed: 5/30/00 19:05

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	5.0	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	87(D)	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	1.4	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	9.78	98	74-127
Toluene d8	10	10.3	103	80-120
p-Bromofluorobenzene	10	10.7	107	80-120

REPORT COMMENTS: None

Analyst: SO/MS Reviewing Supervisor: mm

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com**EPA METHOD 624**Client: **Envirocon, Inc.**
Sample ID: 140101-1704
Project Info: PROJ. #140101, LIVINGSTON RAIL YARD
Lab ID: 005-00-53981
Matrix: WATERDate Reported: 06/09/00
Date Sampled: 5/16/00 0:00
Date Received: 05/22/00
Date Analyzed: 5/30/00 19:40

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION	LIMIT OF
		($\mu\text{g/L}$)	QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	9.8	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
1,2-Dichloroethane d4	10	9.60	96	74-127
Toluene d8	10	10.6	106	80-120
p-Bromofluorobenzene	10	10.5	105	80-120

REPORT COMMENTS: None

Analyst: SP/ang Reviewing Supervisor: mg

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com**EPA METHOD 624**Client: **Envirocon, Inc.**
Sample ID: 140101-1705
Project Info: PROJ. #140101, LIVINGSTON RAIL YARD
Lab ID: 006-00-53981
Matrix: WATERDate Reported: 06/09/00
Date Sampled: 5/16/00 0:00
Date Received: 05/22/00
Date Analyzed: 5/30/00 20:15

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	3.3	0.50
156-60-5	trans-1,2-Dichloroethene	(0.26)(J)	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	32(D)	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	3.5	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

J= Estimated value. Present, but less than the limit of quantitation.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	9.50	95	74-127
Toluene d8	10	10.5	105	80-120
p-Bromofluorobenzene	10	10.7	107	80-120

REPORT COMMENTS: None

Analyst: SP/umg Reviewing Supervisor: msj

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com**EPA METHOD 624**Client: Envirocon, Inc. **L-88-10**
Sample ID: 140101-1706
Project Info: PROJ. #140101, LIVINGSTON RAIL YARD
Lab ID: 007-00-53981
Matrix: WATERDate Reported: 06/09/00
Date Sampled: 5/16/00 0:00
Date Received: 05/22/00
Date Analyzed: 5/30/00 20:49

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	1.4	0.50
95-50-1	1,2-Dichlorobenzene	(0.43)(J)	0.50
106-46-7	1,4-Dichlorobenzene	0.59	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	9.1	0.50
156-60-5	trans-1,2-Dichloroethene	(0.24)(J)	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	24(D)	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	7.3	0.50
75-01-4	Vinyl chloride	(0.46)(J)	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

J= Estimated value. Present, but less than the limit of quantitation.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
1,2-Dichloroethane d4	10	9.50	95	74-127
Toluene d8	10	10.5	105	80-120
p-Bromofluorobenzene	10	10.4	104	80-120

REPORT COMMENTS: None

Analyst: SO/umj Reviewing Supervisor: mmj

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EPA METHOD 624

Client: Envirocon, Inc. **LS-11**
Sample ID: 140101-1707
Project Info: PROJ. #140101, LIVINGSTON RAIL YARD
Lab ID: 008-00-53981
Matrix: WATER

Date Reported: 06/09/00
Date Sampled: 5/17/00 0:00
Date Received: 05/22/00
Date Analyzed: 5/31/00 2:38

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	2.4	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	3.0	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	5.5	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	14	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	5.9	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	(0.39)(J)	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

J= Estimated value. Present, but less than the limit of quantitation.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
1,2-Dichloroethane d4	10	9.12	91	74-127
Toluene d8	10	10.9	109	80-120
p-Bromofluorobenzene	10	10.9	109	80-120

REPORT COMMENTS: None

Analyst: SN/um Reviewing Supervisor: mm /chem/5971A.i/va053000.b/may302801028.d

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com**EPA METHOD 624**Client: Envirocon, Inc. **90-3**
Sample ID: 140101-1708
Project Info: PROJ. #140101, LIVINGSTON RAIL YARD
Lab ID: 009-00-53981
Matrix: WATERDate Reported: 06/09/00
Date Sampled: 5/17/00 0:00
Date Received: 05/22/00
Date Analyzed: 5/31/00 3:13

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	(0.32)(J)	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	17	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	1.2	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

J= Estimated value. Present, but less than the limit of quantitation.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	9.00	90	74-127
Toluene d8	10	10.7	107	80-120
p-Bromofluorobenzene	10	10.9	109	80-120

REPORT COMMENTS: None

Analyst: SO/um Reviewing Supervisor: mm

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com**EPA METHOD 624**Client: Envirocon, Inc. **94-2**
Sample ID: 140101-1709
Project Info: PROJ. #140101, LIVINGSTON RAIL YARD
Lab ID: 010-00-53981
Matrix: WATERDate Reported: 06/09/00
Date Sampled: 5/17/00 0:00
Date Received: 05/22/00
Date Analyzed: 5/31/00 3:48

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	(0.27)(J)	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

J= Estimated value. Present, but less than the limit of quantitation.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	9.16	92	74-127
Toluene d8	10	10.8	108	80-120
p-Bromofluorobenzene	10	11	110	80-120

REPORT COMMENTS: None

Analyst: SO/um Reviewing Supervisor: mm /chem/5971A.iva053000.b/may303001030.d

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com**EPA METHOD 624**Client: Envirocon, Inc. **92-2**
Sample ID: 140101-1710
Project Info: PROJ. #140101, LIVINGSTON RAIL YARD
Lab ID: 011-00-53981
Matrix: WATERDate Reported: 06/09/00
Date Sampled: 5/17/00 0:00
Date Received: 05/22/00
Date Analyzed: 5/31/00 4:22

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	0.60	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	12	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	1.1	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	9.03	90	74-127
Toluene d8	10	10.7	107	80-120
p-Bromofluorobenzene	10	10.9	109	80-120

REPORT COMMENTS: None

Analyst: SP/000 Reviewing Supervisor: mm

/chem/5971A.i/va053000.b/may303101031.d

EPA METHOD 624

Client: **Envirocon, Inc.** **94-1**
Sample ID: 140101-1711
Project Info: PROJ. #140101, LIVINGSTON RAIL YARD
Lab ID: 012-00-53981
Matrix: WATER

Date Reported: 06/09/00
Date Sampled: 5/18/00 0:00
Date Received: 05/22/00
Date Analyzed: 5/31/00 4:57

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION (µg/L)	LIMIT OF QUANTITATION(µg/L)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	1.5	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(µg/L)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	8.76	88	74-127
Toluene d8	10	10.8	108	80-120
p-Bromofluorobenzene	10	10.5	105	80-120

REPORT COMMENTS: None

Analyst: SD/403 Reviewing Supervisor: 0113 /chem/5971A.I/va053000.b/may303201032.d

QUALITY ASSURANCE REPORT FOR EPA METHOD 624: SAMPLE MATRIX SPIKES

Laboratory ID: 012-00-53981ms Matrix Spike
 Matrix: WATER
 Extract Method: EPA 5030

Date Reported: 06/09/00
 Date Analyzed: 5/31/00 20:01

SPIKE COMPOUNDS	CONCENTRATION(μ g/L)			PERCENT RECOVERY	ACCEPTANCE RANGE
	ADDED	SAMPLE	SPIKE		
Carbon tetrachloride	5.00	<0.500	3.66	73	60--140
Chlorobenzene	5.00	<0.500	4.52	90	60--140
1,2-Dichlorobenzene	5.00	<0.500	4.69	94	60--140
1,4-Dichlorobenzene	5.00	<0.500	4.39	88	60--140
1,2-Dichloroethane	5.00	<0.500	3.79	76	60--140
1,1-Dichloroethene	5.00	<0.500	3.68	74	60--140
cis-1,2-Dichloroethene	5.00	<0.500	3.89	78	60--140
trans-1,2-Dichloroethene	5.00	<0.500	4.05	81	60--140
1,2-Dichloropropane	5.00	<0.500	4.76	95	60--140
Methylene chloride	5.00	<0.500	4.07	81	60--140
Tetrachloroethene	5.00	<0.500	5.61	112	60--140
1,1,1-Trichloroethane	5.00	<0.500	3.52	70	60--140
1,1,2-Trichloroethane	5.00	<0.500	4.90	98	60--140
Trichloroethene	5.00	<0.500	4.24	85	60--140
Vinyl chloride	5.00	<0.500	3.51	70	60--140
Bromodichloromethane	5.00	<0.500	4.69	94	60--140
Bromoform	5.00	<0.500	4.45	89	60--140
Chlorodibromomethane	5.00	<0.500	4.21	84	60--140
Chloroform	5.00	<0.500	3.94	79	60--140
Bromomethane	5.00	<0.500	3.62	72	60--140
Chloroethane	5.00	<0.500	3.76	75	60--140
Chloromethane	5.00	<0.500	3.05	61	60--140
2-Chlorotoluene	5.00	<0.500	4.72	94	60--140
1,3-Dichlorobenzene	5.00	<0.500	4.41	88	60--140
Dichlorodifluoromethane	5.00	<0.500	2.42	48	*60--140
1,1-Dichloroethane	5.00	<0.500	4.07	81	60--140
cis-1,3-Dichloropropene	5.00	<0.500	5.10	102	60--140
trans-1,3-Dichloropropene	5.00	<0.500	4.87	97	60--140
1,1,2,2-Tetrachloroethane	5.00	<0.500	5.55	111	60--140
Trichlorofluoromethane	5.00	<0.500	3.35	67	60--140

*= Value outside QC advisory limits.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(μ g/L)		PERCENT RECOVERY	ACCEPTANCE RANGE
	ADDED	MEASURED		
1,2-Dichloroethane d4	10	8.66	87	74--127
Toluene d8	10	11.6	116	80--120
p-Bromofluorobenzene	10	11.3	113	80--120

*= Value outside QC advisory limits.

REPORT COMMENTS: None

Analyst: SD/003 Reviewing Supervisor: 207

/chem/5971A.i/va053100.b/may311401014.d

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com**EPA METHOD 624**Client: **Envirocon, Inc.**
Sample ID: 140101-1712
Project Info: PROJ. #140101, LIVINGSTON RAIL YARD
Lab ID: 013-00-53981
Matrix: WATERDate Reported: 06/09/00
Date Sampled: 5/18/00 0:00
Date Received: 05/22/00
Date Analyzed: 5/31/00 5:32

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION	LIMIT OF
		(µg/L)	QUANTITATION (µg/L)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	0.93	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	52(D)	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	2.4	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION (µg/L)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
1,2-Dichloroethane d4	10	8.97	90	74-127
Toluene d8	10	10.6	106	80-120
p-Bromofluorobenzene	10	11.1	111	80-120

REPORT COMMENTS: None

Analyst: Sn/um Reviewing Supervisor: mrj

/chem/5971A.lva053000.b/may303301033.d

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com**EPA METHOD 624**Client: Envirocon, Inc.
Sample ID: 140101-1713
Project Info: PROJ. #140101, LIVINGSTON RAIL YARD
Lab ID: 014-00-53981
Matrix: WATER

L-87-2

Date Reported: 06/09/00
Date Sampled: 5/18/00 0:00
Date Received: 05/22/00
Date Analyzed: 5/31/00 6:06

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	19	0.50
95-50-1	1,2-Dichlorobenzene	1.5	0.50
106-46-7	1,4-Dichlorobenzene	3.0	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	15	0.50
156-60-5	trans-1,2-Dichloroethene	1.0	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	7.8	0.50
75-01-4	Vinyl chloride	11	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	40(D)	0.50
541-73-1	1,3-Dichlorobenzene	(0.44)(J)	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

J= Estimated value. Present, but less than the limit of quantitation.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	8.77	88	74-127
Toluene d8	10	10.8	108	80-120
p-Bromofluorobenzene	10	10.9	109	80-120

REPORT COMMENTS: None

Analyst: SP/aryReviewing Supervisor: mm

/chem/5971A.i/va053000.b/may303401034.d

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com**EPA METHOD 624**Client: **Envirocon, Inc.**
Sample ID: 140101-1714
Project Info: PROJ. #140101, LIVINGSTON RAIL YARD
Lab ID: 015-00-53981
Matrix: WATERDate Reported: 06/09/00
Date Sampled: 5/19/00 0:00
Date Received: 05/22/00
Date Analyzed: 5/31/00 6:41

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION (µg/L)	LIMIT OF QUANTITATION(µg/L)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	1.0	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	123(D)	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	1.4	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(µg/L)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
1,2-Dichloroethane d4	10	8.79	88	74-127
Toluene d8	10	10.6	106	80-120
p-Bromofluorobenzene	10	11.1	111	80-120

REPORT COMMENTS: None

Analyst: 50/107 Reviewing Supervisor: MD

/chem/5971A.iva053000.b/may303501035.d

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com**EPA METHOD 624**Client: Envirocon, Inc. *89-3 dupl.*
Sample ID: 140101-1715
Project Info: PROJ. #140101, LIVINGSTON RAIL YARD
Lab ID: 016-00-53981
Matrix: WATERDate Reported: 06/09/00
Date Sampled: 5/19/00 0:00
Date Received: 05/22/00
Date Analyzed: 5/31/00 7:16

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION	LIMIT OF
		($\mu\text{g/L}$)	QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	0.80	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	142(D)	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	0.99	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
1,2-Dichloroethane d4	10	8.98	90	74-127
Toluene d8	10	10.5	105	80-120
p-Bromofluorobenzene	10	10.9	109	80-120

REPORT COMMENTS: None

Analyst: *SP/um* Reviewing Supervisor: *MJ*

/chem/5971A.i/va053000.b/may303601036.d

QUALITY ASSURANCE REPORT FOR EPA METHOD 624: METHOD BLANK

Sample ID: Quality Assurance Method Blank
 Matrix: WATER
 Extract Method: EPA 5030

Date Reported: 06/09/00
 Date Analyzed: 5/30/00 11:53

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
1,2-Dichloroethane d4	10	10.2	102	74-127
Toluene d8	10	10.4	104	80-120
p-Bromofluorobenzene	10	10.5	105	80-120

REPORT COMMENTS: None

Analyst: SD/urj Reviewing Supervisor: mtj /chem/5971A.i/va053000.b/may300501005a.d

QUALITY ASSURANCE REPORT FOR EPA METHOD 624: METHOD BLANK

Sample ID: Quality Assurance Method Blank
 Matrix: WATER
 Extract Method: EPA 5030

Date Reported: 06/09/00
 Date Analyzed: 5/30/00 23:43

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	9.20	92	74-127
Toluene d8	10	10.6	106	80-120
p-Bromofluorobenzene	10	10.8	108	80-120

REPORT COMMENTS: None

Analyst: SD/UTJ Reviewing Supervisor: OMJ

/chem/5971A.i/va053000.b/may302301023a.d

Date: 22-MAY-00Received by: Randa HoelscherLogged In by: Randa Hoelscher**SAMPLE CONDITION QA/QC REPORT**

This report provides information about the condition of the sample(s)
and associated sample custody information on receipt at the laboratory.

Chain of Custody Form Completed & Signed	<u>Yes</u>	Comments: _____
Chain of Custody Seal	<u>Yes</u>	Comments: _____
Intact	<u>Yes</u>	Comments: _____
Signature Match Chain of Custody vs. Seal	<u>Yes</u>	Comments: _____
Samples Received Cold	<u>N/A</u>	Comments: <u>Samples received @ 4 C.</u>
Samples Received Within Holding Time	<u>Yes</u>	Comments: _____
Samples Received in Proper Containers	<u>Yes</u>	Comments: _____
Samples Received Properly Preserved	<u>N/A</u>	Comments: _____

Samples requiring analysis for volatile organics are tested for proper preservation at the time of analysis.
Any preservation problems encountered for these samples are noted on the analytical parameter report pages.

Client notified about sample discrepancies:

Who: _____ By: _____ Date/Time: _____

Method of Shipping: Greyhound 151 738 265 8

Additional comments: _____

Split Samples:
☐ Accepted ☐

[illegible]



ENERGY LABORATORIES, INC.

P.O. BOX 30916 • 1120 SOUTH 27TH STREET • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com

June 7, 2000

Michael McKinsey
Envirocon, Inc.
P.O. Box 16655
Missoula, MT 59808

Dear Michael,

On May 22, 2000, these samples, represented by our laboratory numbers 001-00-53981 through 016-00-53981, were submitted to our laboratory for analysis.

The test results and quality assurance were reviewed and approved by the undersigned.

Reviewed by:

A handwritten signature in black ink, appearing to read "Joe Stankus", written over a horizontal line.

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com**EPA METHOD 624**Client: **Envirocon, Inc.** *L-88-10 dupl.*
Sample ID: 140101-1716
Project Info: LIVINGSTON RAIL YARD, PROJ. #140101
Lab ID: 001-00-54160
Matrix: WATERDate Reported: 06/15/00
Date Sampled: 5/23/00 0:00
Date Received: 05/26/00
Date Analyzed: 6/5/00 16:07

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	1.9	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	0.62	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	9.8	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	23(D)	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	7.6	0.50
75-01-4	Vinyl chloride	0.51	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	9.42	94	74-127
Toluene d8	10	10.6	106	80-120
p-Bromofluorobenzene	10	10.6	106	80-120

REPORT COMMENTS: None

Analyst: *hgc/uo* Reviewing Supervisor: *mm*

/chem/5971A:\va060500.b\jun050901009.d

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com**EPA METHOD 624**Client: Envirocon, Inc. **L-88-13**
Sample ID: 140101-1717
Project Info: LIVINGSTON RAIL YARD, PROJ. #140101
Lab ID: 002-00-54160
Matrix: WATERDate Reported: 06/15/00
Date Sampled: 5/23/00 0:00
Date Received: 05/26/00
Date Analyzed: 6/5/00 17:07

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	0.63	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	11	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	1.8	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
1,2-Dichloroethane d4	10	10.2	102	74-127
Toluene d8	10	10.3	103	80-120
p-Bromofluorobenzene	10	10.6	106	80-120

REPORT COMMENTS: None

Analyst: HSC/umg Reviewing Supervisor: MM

/chem/5971A.i/va060500.b/jun051001010.d

EPA METHOD 624

Client: **Envirocon, Inc.** *L-88-13 dup.*
Sample ID: 140101-1718
Project Info: LIVINGSTON RAIL YARD, PROJ. #140101
Lab ID: 003-00-54160
Matrix: WATER

Date Reported: 06/15/00
Date Sampled: 5/23/00 0:00
Date Received: 05/26/00
Date Analyzed: 6/5/00 17:43

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	0.64	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	11	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	1.8	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	10.3	103	74-127
Toluene d8	10	10.5	105	80-120
p-Bromofluorobenzene	10	10.4	104	80-120

REPORT COMMENTS: None

Analyst: HJC/um Reviewing Supervisor: [Signature] /chem/5971A.i/va060500.b/jun051101011.d

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com**EPA METHOD 624**Client: Envirocon, Inc. **L-87-7**
Sample ID: 140101-1719
Project Info: LIVINGSTON RAIL YARD, PROJ. #140101
Lab ID: 004-00-54160
Matrix: WATERDate Reported: 06/15/00
Date Sampled: 5/24/00 0:00
Date Received: 05/26/00
Date Analyzed: 6/7/00 15:33

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon Tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene Chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl Chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	0.50
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	0.52	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
75-69-4	Fluorotrichloromethane	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	10.9	109	74--127
Toluene d8	10	10.4	104	80--120
p-Bromofluorobenzene	10	10	100	80--120

REPORT COMMENTS: None

Analyst: HGC/um Reviewing Supervisor: mm /chem/IONTRAP1.i\vb060700.b\05jun07.d

EPA METHOD 624

L-87-4

Client: Envirocon, Inc.

Sample ID: 140101-1720

Project Info: LIVINGSTON RAIL YARD, PROJ. #140101

Lab ID: 005-00-54160

Matrix: WATER

Date Reported: 06/15/00

Date Sampled: 5/24/00 0:00

Date Received: 05/26/00

Date Analyzed: 6/7/00 16:30

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION (µg/L)	LIMIT OF QUANTITATION(µg/L)
56-23-5	Carbon Tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene Chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl Chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	0.50
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
75-69-4	Fluorotrichloromethane	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(µg/L)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	9.95	99	74--127
Toluene d8	10	10.9	109	80--120
p-Bromofluorobenzene	10	9.99	100	80--120

REPORT COMMENTS: None

Analyst: HJC/umj Reviewing Supervisor: mm

/chem/IONTRAP1.iwb060700.b/06jun07.d

EPA METHOD 624

Client: **Envirocon, Inc.**
Sample ID: **140101-1721**
Project Info: **LIVINGSTON RAIL YARD, PROJ. #140101**
Lab ID: **006-00-54160**
Matrix: **WATER**

Date Reported: **06/15/00**
Date Sampled: **5/24/00 0:00**
Date Received: **05/26/00**
Date Analyzed: **6/8/00 13:20**

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon Tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene Chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl Chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	0.50
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
75-69-4	Fluorotrichloromethane	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	9.60	96	74-127
Toluene d8	10	10.6	106	80-120
p-Bromofluorobenzene	10	10.9	109	80-120

REPORT COMMENTS: None

Analyst: HJC/urj Reviewing Supervisor: am

/chem/IONTRAP1.i/vb060700.b/35jun07.d

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com**EPA METHOD 624**Client: **Envirocon, Inc.**
Sample ID: 140101-1722
Project Info: LIVINGSTON RAIL YARD, PROJ. #140101
Lab ID: 007-00-54160
Matrix: WATERDate Reported: 06/15/00
Date Sampled: 5/24/00 0:00
Date Received: 05/26/00
Date Analyzed: 6/7/00 21:53

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon Tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene Chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl Chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	0.50
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
75-69-4	Fluorotrichloromethane	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	10.8	108	74-127
Toluene d8	10	10.4	104	80-120
p-Bromofluorobenzene	10	10.7	107	80-120

REPORT COMMENTS: None

Analyst: HSC/um Reviewing Supervisor: msy

/chem/IONTRAP1.i\vb060700.b\11jun07.d

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com**EPA METHOD 624**Client: **Envirocon, Inc.**
Sample ID: 140101-1723
Project Info: LIVINGSTON RAIL YARD, PROJ. #140101
Lab ID: 008-00-54160
Matrix: WATERDate Reported: 06/15/00
Date Sampled: 5/24/00 0:00
Date Received: 05/26/00
Date Analyzed: 6/7/00 22:32

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon Tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene Chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl Chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	0.50
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
75-69-4	Fluorotrichloromethane	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
1,2-Dichloroethane d4	10	10.9	109	74-127
Toluene d8	10	10.5	105	80-120
p-Bromofluorobenzene	10	10.6	106	80-120

REPORT COMMENTS: None

Analyst: HJC/lwnReviewing Supervisor: [Signature]

/chem/10NTRAP1.i/vb060700.b/12jun07.d

EPA METHOD 624

Client: Envirocon, Inc. *4*
Sample ID: 140101-1724
Project Info: LIVINGSTON RAIL YARD, PROJ. #140101
Lab ID: 009-00-54160
Matrix: WATER

Date Reported: 06/15/00
Date Sampled: 5/24/00 0:00
Date Received: 05/26/00
Date Analyzed: 6/7/00 23:51

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION (µg/L)	LIMIT OF QUANTITATION(µg/L)
56-23-5	Carbon Tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene Chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl Chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	0.50
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
75-69-4	Fluorotrichloromethane	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(µg/L)		PERCENT RECOVERY	ACCEPTANCE RANGE
	ADDED	MEASURED		
1,2-Dichloroethane d4	10	10.7	107	74-127
Toluene d8	10	10.6	106	80-120
p-Bromofluorobenzene	10	10.4	104	80-120

REPORT COMMENTS: None

Analyst: *[Signature]* Reviewing Supervisor: *[Signature]* /chem/IONTRAP1.ivb060700.b/14jun07.d

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FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com**EPA METHOD 624**Client: **Envirocon, Inc.**
Sample ID: **140101-1725**
Project Info: **LIVINGSTON RAIL YARD, PROJ. #140101**
Lab ID: **010-00-54160**
Matrix: **WATER**Date Reported: **06/15/00**
Date Sampled: **5/24/00 0:00**
Date Received: **05/26/00**
Date Analyzed: **6/8/00 0:31**

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon Tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene Chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl Chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	0.50
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
75-69-4	Fluorotrichloromethane	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	11.1	111	74-127
Toluene d8	10	10.1	101	80-120
p-Bromofluorobenzene	10	10.6	106	80-120

REPORT COMMENTS: None

Analyst: KSC/won Reviewing Supervisor: mg /chem/IIONTRAP1.i/vb060700.b/15jun07.d

EPA METHOD 624

Client: Envirocon, Inc.
Sample ID: 140101-1726
Project Info: LIVINGSTON RAIL YARD, PROJ. #140101
Lab ID: 011-00-54160
Matrix: WATER

Date Reported: 06/15/00
Date Sampled: 5/24/00 0:00
Date Received: 05/26/00
Date Analyzed: 6/7/00 23:12

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION (µg/L)	LIMIT OF QUANTITATION(µg/L)
56-23-5	Carbon Tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene Chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl Chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	0.50
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
75-69-4	Fluorotrichloromethane	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(µg/L)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
1,2-Dichloroethane d4	10	10.7	107	74-127
Toluene d8	10	10.6	106	80-120
p-Bromofluorobenzene	10	10.9	109	80-120

REPORT COMMENTS: None

Analyst: HJC/umj Reviewing Supervisor: umj
/chem/IONTRAP1.i/vb060700.b/13jun07.d

EPA METHOD 624

Client: Envirocon, Inc. 92-1
Sample ID: 140101-1728
Project Info: LIVINGSTON RAIL YARD, PROJ. #140101
Lab ID: 012-00-54160
Matrix: WATER

Date Reported: 06/15/00
Date Sampled: 5/25/00 0:00
Date Received: 05/26/00
Date Analyzed: 6/8/00 11:25

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon Tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	17	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene Chloride	ND	0.50
127-18-4	Tetrachloroethene	73(D)	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl Chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	0.50
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
75-69-4	Fluorotrichloromethane	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	10.7	107	74--127
Toluene d8	10	10.1	101	80--120
p-Bromofluorobenzene	10	10.9	109	80--120

REPORT COMMENTS: None

Analyst: HSC/WS Reviewing Supervisor: nm

/chem/IONTRAP1.ivb060700.b/32jun07.d

EPA METHOD 624

Client: **Envirocon, Inc.**
Sample ID: **140101-1729**
Project Info: **LIVINGSTON RAIL YARD, PROJ. #140101**
Lab ID: **013-00-54160**
Matrix: **WATER**

92-1 dup.

Date Reported: **06/15/00**
Date Sampled: **5/25/00 0:00**
Date Received: **05/26/00**
Date Analyzed: **6/8/00 12:04**

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION (µg/L)	LIMIT OF QUANTITATION(µg/L)
56-23-5	Carbon Tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	15	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene Chloride	ND	0.50
127-18-4	Tetrachloroethene	96(D)	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl Chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	0.50
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
75-69-4	Fluorotrichloromethane	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(µg/L)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	10.1	101	74-127
Toluene d8	10	10.7	107	80-120
p-Bromofluorobenzene	10	10.8	108	80-120

REPORT COMMENTS: None

Analyst: HJG/um Reviewing Supervisor: WJ

/chem/IONTRAP1.ivb060700.b/33jun07.d

QUALITY ASSURANCE REPORT FOR EPA METHOD 624: SAMPLE MATRIX SPIKES

Laboratory ID: 012-00-54160MS Matrix Spike
 Matrix: WATER
 Extract Method: EPA 5030

Date Reported: 06/15/00
 Date Analyzed: 6/8/00 23:38

SPIKE COMPOUNDS	CONCENTRATION(μ g/L)			PERCENT RECOVERY	ACCEPTANCE RANGE
	ADDED	SAMPLE	SPIKE		
Carbon Tetrachloride	50	<0.500	54.2	108	60--140
Chlorobenzene	50	<0.500	53.7	107	60--140
1,2-Dichlorobenzene	50	<0.500	49.7	99	60--140
1,4-Dichlorobenzene	50	<0.500	48.9	98	60--140
1,2-Dichloroethane	50	<0.500	54.9	110	60--140
1,1-Dichloroethene	50	<0.500	48.3	97	60--140
cis-1,2-Dichloroethene	50	17	65.6	97	60--140
trans-1,2-Dichloroethene	50	<0.500	53.2	106	60--140
1,2-Dichloropropane	50	<0.500	54.2	108	60--140
Methylene Chloride	50	<0.500	52.6	105	60--140
Tetrachloroethene	50	73	132	120	60--140
1,1,1-Trichloroethane	50	<0.500	55	110	60--140
1,1,2-Trichloroethane	50	<0.500	53.3	107	60--140
Trichloroethene	50	<0.500	54.2	108	60--140
Vinyl Chloride	50	<0.500	47.8	96	60--140
Bromodichloromethane	50	<0.500	53.3	107	60--140
Bromoform	50	<0.500	51.1	102	60--140
Chlorodibromomethane	50	<0.500	50.2	100	60--140
Chloroform	50	<0.500	53.3	107	60--140
Bromomethane	50	<0.500	39	78	60--140
Chloroethane	50	<0.500	56.1	112	60--140
Chloromethane	50	<0.500	44	88	60--140
2-Chlorotoluene	50	<0.500	49.4	99	60--140
1,3-Dichlorobenzene	50	<0.500	49.3	99	60--140
Dichlorodifluoromethane	50	<0.500	48.8	98	60--140
1,1-Dichloroethane	50	<0.500	55.8	112	60--140
cis-1,3-Dichloropropene	50	<0.500	40	80	60--140
trans-1,3-Dichloropropene	50	<0.500	56.8	114	60--140
Fluorotrichloromethane	50	<0.500	46.7	93	60--140
1,1,2,2-Tetrachloroethane	50	<0.500	54.3	109	60--140

*= Value outside QC advisory limits.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(μ g/L)		PERCENT RECOVERY	ACCEPTANCE RANGE
	ADDED	MEASURED		
1,2-Dichloroethane d4	10	10.4	104	74--127
Toluene d8	10	10.5	105	80--120
p-Bromofluorobenzene	10	10.4	104	80--120

REPORT COMMENTS: None

Analyst: H3C/aw Reviewing Supervisor: [Signature] /chem/IONTRAP1.i/vb060700.b/49jun07.d

QUALITY ASSURANCE REPORT FOR EPA METHOD 624: REFERENCE STANDARD BLANK MATRIX SPIKE

Sample ID: Quality Assurance Blank Matrix Spike
 Matrix: WATER
 Extract Method: EPA 5030

Date Reported: 06/15/00
 Date Analyzed: 6/8/00 5:41

SPIKE COMPOUNDS	CONCENTRATION(μ g/L)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
Carbon Tetrachloride	5.00	4.55	91	60--140
Chlorobenzene	5.00	4.59	92	60--140
1,2-Dichlorobenzene	5.00	4.45	89	60--140
1,4-Dichlorobenzene	5.00	4.44	89	60--140
1,2-Dichloroethane	5.00	4.73	95	60--140
1,1-Dichloroethene	5.00	4.32	86	60--140
cis-1,2-Dichloroethene	5.00	4.22	84	60--140
trans-1,2-Dichloroethene	5.00	4.29	86	60--140
1,2-Dichloropropane	5.00	4.21	84	60--140
Methylene Chloride	5.00	5.05	101	60--140
Tetrachloroethene	5.00	4.26	85	60--140
1,1,1-Trichloroethane	5.00	4.72	94	60--140
1,1,2-Trichloroethane	5.00	4.37	87	60--140
Trichloroethene	5.00	4.65	93	60--140
Vinyl Chloride	5.00	3.82	76	60--140
2-Chloroethylvinyl ether	5.00	5.85	117	60--140
Bromodichloromethane	5.00	4.30	86	60--140
Bromoform	5.00	4.13	83	60--140
Chlorodibromomethane	5.00	4.00	80	60--140
Chloroform	5.00	4.62	92	60--140
Bromomethane	5.00	3.07	61	60--140
Chloroethane	5.00	6.88	138	60--140
Chloromethane	5.00	3.89	78	60--140
2-Chlorotoluene	5.00	4.38	88	60--140
1,3-Dichlorobenzene	5.00	4.39	88	60--140
Dichlorodifluoromethane	5.00	4.27	85	60--140
1,1-Dichloroethane	5.00	4.57	91	60--140
cis-1,3-Dichloropropene	5.00	3.44	69	60--140
trans-1,3-Dichloropropene	5.00	4.26	85	60--140
Fluorotrichloromethane	5.00	4.08	82	60--140
1,1,2,2-Tetrachloroethane	5.00	4.42	88	60--140

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(μ g/L)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	10.2	102	74--127
Toluene d8	10	10.4	104	80--120
p-Bromofluorobenzene	10	10.9	109	80--120

REPORT COMMENTS: None

Analyst: HJC/wj Reviewing Supervisor: MJ

/chem/IONTRAP1.i/vb060700.b/23jun07.d

QUALITY ASSURANCE REPORT FOR EPA METHOD 624: REFERENCE STANDARD BLANK MATRIX SPIKE

Sample ID: Quality Assurance Blank Matrix Spike
 Matrix: WATER
 Extract Method: EPA 5030

Date Reported: 06/15/00
 Date Analyzed: 6/5/00 11:29

SPIKE COMPOUNDS	CONCENTRATION(μ g/L)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
Carbon tetrachloride	5.00	4.58	92	60--140
Chlorobenzene	5.00	4.76	95	60--140
1,2-Dichlorobenzene	5.00	4.86	97	60--140
1,4-Dichlorobenzene	5.00	4.73	95	60--140
1,2-Dichloroethane	5.00	5.26	105	60--140
1,1-Dichloroethene	5.00	4.65	93	60--140
cis-1,2-Dichloroethene	5.00	4.85	97	60--140
trans-1,2-Dichloroethene	5.00	4.90	98	60--140
1,2-Dichloropropane	5.00	5.16	103	60--140
Methylene chloride	5.00	4.69	94	60--140
Tetrachloroethene	5.00	4.77	95	60--140
1,1,1-Trichloroethane	5.00	4.57	91	60--140
1,1,2-Trichloroethane	5.00	4.99	100	60--140
Trichloroethene	5.00	4.91	98	60--140
Vinyl chloride	5.00	4.58	92	60--140
2-Chloroethylvinyl ether	5.00	5.45	109	60--140
Bromodichloromethane	5.00	4.78	96	60--140
Bromoform	5.00	4.51	90	60--140
Chlorodibromomethane	5.00	4.59	92	60--140
Chloroform	5.00	4.64	93	60--140
Bromomethane	5.00	5.13	103	60--140
Chloroethane	5.00	4.90	98	60--140
Chloromethane	5.00	3.64	73	60--140
2-Chlorotoluene	5.00	4.76	95	60--140
1,3-Dichlorobenzene	5.00	4.70	94	60--140
Dichlorodifluoromethane	5.00	3.30	66	60--140
1,1-Dichloroethane	5.00	4.72	94	60--140
cis-1,3-Dichloropropene	5.00	5.50	110	60--140
trans-1,3-Dichloropropene	5.00	5.30	106	60--140
1,1,2,2-Tetrachloroethane	5.00	5.13	103	60--140
Trichlorofluoromethane	5.00	4.61	92	60--140

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(μ g/L)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	10.6	106	74--127
Toluene d8	10	10.6	106	80--120
p-Bromofluorobenzene	10	10.3	103	80--120

REPORT COMMENTS: None

Analyst: WMB/ML Reviewing Supervisor: MM

/chem/5971A.i/va060500.b/jun050301003b.d

QUALITY ASSURANCE REPORT FOR EPA METHOD 624: METHOD BLANK

Sample ID: Quality Assurance Method Blank
 Matrix: WATER
 Extract Method: EPA 5030

Date Reported: 06/15/00
 Date Analyzed: 6/5/00 12:03

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION (µg/L)	LIMIT OF QUANTITATION(µg/L)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(µg/L)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
1,2-Dichloroethane d4	10	10.4	104	74-127
Toluene d8	10	10.7	107	80-120
p-Bromofluorobenzene	10	10.8	108	80-120

REPORT COMMENTS: None

Analyst: HJC/awj Reviewing Supervisor: my /chem/5971A.i/va060500.b/jun050401004.d

QUALITY ASSURANCE REPORT FOR EPA METHOD 624: METHOD BLANK

Sample ID: Quality Assurance Method Blank
 Matrix: WATER
 Extract Method: EPA 5030

Date Reported: 06/15/00
 Date Analyzed: 6/7/00 21:13

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon Tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene Chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl Chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	0.50
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
75-69-4	Fluorotrichloromethane	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	11.3	113	74--127
Toluene d8	10	10	100	80--120
p-Bromofluorobenzene	10	10.4	104	80--120

REPORT COMMENTS: None

Analyst: HSC/urj Reviewing Supervisor: my /chem/IONTRAP1.i/vb060700.b/10jun07.d

QUALITY ASSURANCE REPORT FOR EPA METHOD 624: METHOD BLANK

Sample ID: Quality Assurance Method Blank
 Matrix: WATER
 Extract Method: EPA 5030

Date Reported: 06/15/00
 Date Analyzed: 6/7/00 10:34
 Date Extracted:

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon Tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene Chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl Chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	0.50
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
75-69-4	Fluorotrichloromethane	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
1,2-Dichloroethane d4	10	10.7	107	74-127
Toluene d8	10	10.6	106	80-120
p-Bromofluorobenzene	10	10	100	80-120

REPORT COMMENTS: None

Analyst: HSC/ump Reviewing Supervisor: om /chem/IIONTRAP1.i/vb060700.b/04jun07.d

**ENERGY LABORATORIES, INC.**P.O. BOX 30916 • 1120 SOUTH 27TH STREET • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com**EPA METHOD 524.2**Client: Envirocon, Inc. *B Street*
Sample ID: 140101-1727
Project Info: LIVINGSTON RAIL YARD, PROJ. #140101
Lab ID: 014-00-54160
Matrix: WATERDate Reported: 06/19/00
Date Sampled: 5/25/00 0:00
Date Received: 05/26/00
Date Analyzed: 6/8/00 10:12

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
71-43-2	Benzene	ND	0.50
56-23-5	Carbon Tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
100-41-4	Ethylbenzene	ND	0.50
75-09-2	Methylene Chloride	ND	0.50
100-42-5	Styrene	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
108-88-3	Toluene	ND	0.50
120-82-1	1,2,4-Trichlorobenzene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl Chloride	ND	0.50
108383/106423	m+p-Xylenes	ND	0.50
95-47-6	o-Xylene	ND	0.50
	Total Xylenes	ND	0.50
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
108-86-1	Bromobenzene	ND	0.50
74-97-5	Bromochloromethane	ND	0.50
74-83-9	Bromomethane	ND	0.50
104-51-8	n-Butylbenzene	ND	0.50
135-98-8	sec-Butylbenzene	ND	0.50
98-06-6	tert-Butylbenzene	ND	0.50
74-87-3	Chloromethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
106-43-4	4-Chlorotoluene	ND	0.50
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50
106-93-4	1,2-Dibromoethane	ND	0.50
74-95-3	Dibromomethane	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
563-58-6	1,1-Dichloropropene	ND	0.50
142-28-9	1,3-Dichloropropane	ND	0.50

EPA METHOD 524.2(Continued)

Client: **Envirocon, Inc.**

Date Reported: **6/19/00**

Sample ID: **140101-1727**

Lab ID: **014-00-54160**

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
594-20-7	2,2-Dichloropropane	ND	0.50
87-68-3	Hexachlorobutadiene	ND	0.50
98-82-8	Isopropylbenzene	ND	0.50
99-87-6	p-Isopropyltoluene	ND	0.50
1634-04-4	Methyl-t-butyl ether	ND	0.50
91-20-3	Naphthalene	ND	0.50
103-65-1	n-Propylbenzene	ND	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50
87-61-6	1,2,3-Trichlorobenzene	ND	0.50
96-18-4	1,2,3-Trichloropropane	ND	0.50
95-63-6	1,2,4-Trimethylbenzene	ND	0.50
108-67-8	1,3,5-Trimethylbenzene	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	9.16	92	74--127
Toluene d8	10	11.4	114	80--120
p-Bromofluorobenzene	10	10.9	109	80--120

REPORT COMMENTS: None

Analyst: HJC/umj Reviewing Supervisor: my /chem/IIONTRAP2.itvc060800.b/03jun08.d

QUALITY ASSURANCE REPORT FOR EPA METHOD 524.2: REFERENCE STANDARD BLANK MATRIX SPIKE

Sample ID: Quality Assurance Blank Matrix Spike
 Matrix: WATER
 Extract Method: EPA 5030

Date Reported: 06/19/00
 Date Analyzed: 6/8/00 7:44

SPIKE COMPOUNDS	CONCENTRATION(µg/L)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
Benzene	5.00	4.86	97	60-140
Carbon Tetrachloride	5.00	5.38	108	60-140
Chlorobenzene	5.00	4.97	99	60-140
1,2-Dichlorobenzene	5.00	5.14	103	60-140
1,4-Dichlorobenzene	5.00	5.17	103	60-140
1,2-Dichloroethane	5.00	5.04	101	60-140
1,1-Dichloroethene	5.00	4.96	99	60-140
cis-1,2-Dichloroethene	5.00	5.20	104	60-140
trans-1,2-Dichloroethene	5.00	5.14	103	60-140
1,2-Dichloropropane	5.00	4.91	98	60-140
Ethylbenzene	5.00	4.78	96	60-140
Methylene Chloride	5.00	6.52	130	60-140
Styrene	5.00	4.83	97	60-140
Tetrachloroethene	5.00	5.18	104	60-140
Toluene	5.00	5.23	105	60-140
1,2,4-Trichlorobenzene	5.00	4.72	94	60-140
1,1,1-Trichloroethane	5.00	5.13	103	60-140
1,1,2-Trichloroethane	5.00	4.56	91	60-140
Trichloroethene	5.00	5.50	110	60-140
Vinyl Chloride	5.00	5.57	111	60-140
m+p-Xylenes	10	9.96	100	60-140
o-Xylene	5.00	5.06	101	60-140
Bromodichloromethane	5.00	5.01	100	60-140
Bromoform	5.00	3.94	79	60-140
Chlorodibromomethane	5.00	4.61	92	60-140
Chloroform	5.00	4.81	96	60-140
Bromobenzene	5.00	5.00	100	60-140
Bromochloromethane	5.00	4.66	93	60-140
Bromomethane	5.00	4.83	97	60-140
n-Butylbenzene	5.00	5.43	109	60-140
sec-Butylbenzene	5.00	5.56	111	60-140
tert-Butylbenzene	5.00	5.73	115	60-140
Chloromethane	5.00	5.07	101	60-140
Chloroethane	5.00	3.69	74	60-140
2-Chlorotoluene	5.00	5.62	112	60-140
4-Chlorotoluene	5.00	5.40	108	60-140
1,2-Dibromo-3-chloropropane	5.00	4.54	91	60-140
1,2-Dibromoethane	5.00	4.37	87	60-140
Dibromomethane	5.00	4.52	90	60-140
1,3-Dichlorobenzene	5.00	5.05	101	60-140
Dichlorodifluoromethane	5.00	4.88	98	60-140
1,1-Dichloroethane	5.00	5.25	105	60-140
1,1-Dichloropropene	5.00	5.18	104	60-140
1,3-Dichloropropane	5.00	4.52	90	60-140
cis-1,3-Dichloropropene	5.00	5.13	103	60-140
trans-1,3-Dichloropropene	5.00	4.72	94	60-140
2,2-Dichloropropane	5.00	5.29	106	60-140
Hexachlorobutadiene	5.00	5.65	113	60-140
Isopropylbenzene	5.00	5.60	112	60-140
p-Isopropyltoluene	5.00	5.46	109	60-140
Methyl-t-butyl ether	5.00	4.80	96	60-140
Naphthalene	5.00	4.63	93	60-140
n-Propylbenzene	5.00	5.85	117	60-140
1,1,1,2-Tetrachloroethane	5.00	4.99	100	60-140
1,1,2,2-Tetrachloroethane	5.00	4.72	94	60-140
Trichlorofluoromethane	5.00	5.27	105	60-140
1,2,3-Trichlorobenzene	5.00	4.61	92	60-140
1,2,3-Trichloropropane	5.00	4.95	99	60-140
1,2,4-Trimethylbenzene	5.00	5.58	112	60-140
1,3,5-Trimethylbenzene	5.00	5.94	119	60-140

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(µg/L)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
1,2-Dichloroethane d4	10	10.4	104	74-127
Toluene d8	10	11	110	80-120
p-Bromofluorobenzene	10	10.9	109	80-120

REPORT COMMENTS: None

Analyst: HRC/lmj Reviewing Supervisor: [Signature] /chem/IONTRAP2.1/vc050800.b/fb0608a.d

QUALITY ASSURANCE REPORT FOR EPA METHOD 524.2: METHOD BLANK

Sample ID: Quality Assurance Method Blank
 Matrix: WATER
 Extract Method: EPA 5030

Date Reported: 06/19/00
 Date Analyzed: 6/8/00 9:11

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION (µg/L)	LIMIT OF QUANTITATION(µg/L)
71-43-2	Benzene	ND	0.50
56-23-5	Carbon Tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
100-41-4	Ethylbenzene	ND	0.50
75-09-2	Methylene Chloride	ND	0.50
100-42-5	Styrene	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
108-88-3	Toluene	ND	0.50
120-82-1	1,2,4-Trichlorobenzene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl Chloride	ND	0.50
108383/106423	m+p-Xylenes	ND	0.50
95-47-6	o-Xylene	ND	0.50
	Total Xylenes	ND	0.50
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
108-86-1	Bromobenzene	ND	0.50
74-97-5	Bromochloromethane	ND	0.50
74-83-9	Bromomethane	ND	0.50
104-51-8	n-Butylbenzene	ND	0.50
135-98-8	sec-Butylbenzene	ND	0.50
98-06-6	tert-Butylbenzene	ND	0.50
74-87-3	Chloromethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
106-43-4	4-Chlorotoluene	ND	0.50
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50
106-93-4	1,2-Dibromoethane	ND	0.50
74-95-3	Dibromomethane	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
563-58-6	1,1-Dichloropropene	ND	0.50
142-28-9	1,3-Dichloropropane	ND	0.50

QUALITY ASSURANCE REPORT FOR EPA METHOD 524.2: METHOD BLANK (Continued)

Sample ID: Quality Assurance Method Blank
 Matrix: WATER
 Extract Method: EPA 5030

Date Reported: 06/19/00
 Date Analyzed: 6/8/00 9:11

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
594-20-7	2,2-Dichloropropane	ND	0.50
87-68-3	Hexachlorobutadiene	ND	0.50
98-82-8	Isopropylbenzene	ND	0.50
99-87-6	p-Isopropyltoluene	ND	0.50
1634-04-4	Methyl-t-butyl ether	ND	0.50
91-20-3	Naphthalene	ND	0.50
103-65-1	n-Propylbenzene	ND	0.50
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50
87-61-6	1,2,3-Trichlorobenzene	ND	0.50
96-18-4	1,2,3-Trichloropropane	ND	0.50
95-63-6	1,2,4-Trimethylbenzene	ND	0.50
108-67-8	1,3,5-Trimethylbenzene	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	9.84	98	74--127
Toluene d8	10	11.7	117	80--120
p-Bromofluorobenzene	10	11.4	114	80--120

REPORT COMMENTS: None

Analyst: HJC/um Reviewing Supervisor: my /chem/IIONTRAP2.i/vc060800.b/02jun08.d

Date: 26-MAY-00

Received by: Randa Hoelscher

Logged In by: Randa Hoelscher

SAMPLE CONDITION QA/QC REPORT

This report provides information about the condition of the sample(s)
and associated sample custody information on receipt at the laboratory.

Chain of Custody Form
Completed & Signed

Yes Comments: _____

Chain of Custody Seal

Yes Comments: _____

Intact

Yes Comments: _____

Signature Match Chain of Custody vs. Seal

Yes Comments: _____

Samples Received Cold

N/A Comments: Samples received @ 10 C.

Samples Received Within Holding Time

Yes Comments: _____

Samples Received in Proper Containers

Yes Comments: _____

Samples Received Properly Preserved

N/A Comments: _____

Samples requiring analysis for volatile organics are tested for proper preservation at the time of analysis.
Any preservation problems encountered for these samples are noted on the analytical parameter report pages.

Client notified about sample discrepancies:

Who: Michael McKinsey

By: Joe Conard

Date/Time: 06/09/00

Method of Shipping: RR Trlwys 760505

Additional comments: Client was notified that 00-54160-6 for 601 volatiles, missed holding time. Client
said to report results and run the sample.

PROJ. NO.	PROJECT NAME	SAMPLERS: (Signature)		NO. OF CON-TAINERS	REMARKS	
140101	Livingston Rail Yard	Michael McRae (406) 523-1167				
SAMPLED VOLUME	DATE	TIME	COMP.	GRAB	SAMPLE NUMBER	
2-40ml	5/23/00				140101-1716	
					-1717	
					-1718	
	5/24/00				-1719	
					-1720	
					-1721	
					-1722	
					-1723	
					-1724	
					-1725	
					-1726	
	5/25/00				-1727	
					-1728	
					-1729	

RELINQUISHED (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RECEIVED BY: (Signature)
Michael McRae	5/23/00 1230		
Relinquished (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RECEIVED BY: (Signature)

Chain of Custody Seal:	Lab Personnel (receiving)	REMARKS
Intact? (yes/no) <u>Intact</u>	Signature: <u>Karla Holbrook 05/24/00 0805</u>	

Split Samples:

☐ Accepted
 ☐ Declined

Signature



ENERGY LABORATORIES, INC.

P.O. BOX 30916 • 1120 SOUTH 27TH STREET • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
FAX (406) 252-6069 • 1-800-735-4489 • E-MAIL eli@energylab.com

June 16, 2000

Michael McKinsey
Envirocon, Inc.
P.O. Box 16655
Missoula, MT 59808

Dear Michael,

On May 26, 2000, these samples, represented by our laboratory numbers 001-00-54160 through 014-00-54160, were submitted to our laboratory for analysis.

The test results and quality assurance were reviewed and approved by the undersigned.

Reviewed by:

A handwritten signature in black ink, appearing to read "W. J. Pignatiello", written over a horizontal line.

NOVEMBER 2000

BNSF GROUND WATER SAMPLE RESULTS

EPA METHOD 624

Client: **Envirocon, Inc.**
Sample ID: 1730
Project Info: PROJ. #140101, LRY
Lab ID: 001-00-59961
Matrix: WATER; pH= < 2

89-4

Date Reported: 11/28/00
Date Sampled: 11/14/00 00:00
Date Received: 11/18/00
Date Analyzed: 11/22/00 01:18

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION (µg/L)	LIMIT OF QUANTITATION(µg/L)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	2.8	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	82(D)	5.0
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	1.5	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(µg/L)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
1,2-Dichloroethane d4	10	9.72	97	74--127
Toluene d8	10	8.96	90	80--120
p-Bromofluorobenzene	10	9.83	98	80--120

REPORT COMMENTS: None

Analyst: Reviewing Supervisor:

/chem/5971A.i/va112100.b/nov212501025.d

EPA METHOD 624

Client: Envirocon, Inc.
Sample ID: 1731
Project Info: PROJ. #140101, LRY
Lab ID: 002-00-59961
Matrix: WATER; pH= < 2

Date Reported: 11/28/00
Date Sampled: 11/14/00 00:00
Date Received: 11/18/00
Date Analyzed: 11/22/00 01:56

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	1.3	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	117(D)	5.0
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	9.75	98	74--127
Toluene d8	10	8.73	87	80--120
p-Bromofluorobenzene	10	9.76	98	80--120

REPORT COMMENTS: None

Analyst: C

Reviewing Supervisor: MTB

/chem/5971A.i/va112100.b/nov212601026.d

EPA METHOD 624

Client: Envirocon, Inc.
Sample ID: 1732 *L-88-10*
Project Info: PROJ. #140101, LRY
Lab ID: 003-00-59961
Matrix: WATER; pH= < 2

Date Reported: 11/28/00
Date Sampled: 11/14/00 00:00
Date Received: 11/18/00
Date Analyzed: 11/22/00 02:34

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	3.0	0.50
95-50-1	1,2-Dichlorobenzene	0.56	0.50
106-46-7	1,4-Dichlorobenzene	0.66	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	14	0.50
156-60-5	trans-1,2-Dichloroethene	(0.30)(J)	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	24(D)	5.0
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	7.8	0.50
75-01-4	Vinyl chloride	0.67	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	(0.26)(J)	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

J= Estimated value. Present, but less than the limit of quantitation.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	9.80	98	74--127
Toluene d8	10	9.40	94	80--120
p-Bromofluorobenzene	10	9.52	95	80--120

REPORT COMMENTS: None

Analyst: *CE* Reviewing Supervisor: *MB*

/chem/5971A.i/va112100.b/nov212701027.d

EPA METHOD 624

Client: **Envirocon, Inc.**

Sample ID: 1733

Project Info: PROJ. #140101, LRY

Lab ID: 004-00-59961

Matrix: WATER; pH= < 2

Date Reported: 11/28/00

Date Sampled: 11/14/00 00:00

Date Received: 11/18/00

Date Analyzed: 11/22/00 03:13

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION (µg/L)	LIMIT OF QUANTITATION(µg/L)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	(0.32)(J)	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

J= Estimated value. Present, but less than the limit of quantitation.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(µg/L)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	9.42	94	74--127
Toluene d8	10	9.14	91	80--120
p-Bromofluorobenzene	10	9.79	98	80--120

REPORT COMMENTS: None

Analyst: 

Reviewing Supervisor: 

/chem/5971A.i/va112100.b/nov212801028.d

EPA METHOD 624

Client: Envirocon, Inc.
Sample ID: 1734 *L-87-2*
Project Info: PROJ. #140101, LRY
Lab ID: 005-00-59961
Matrix: WATER; pH= < 2

Date Reported: 11/28/00
Date Sampled: 11/14/00 00:00
Date Received: 11/18/00
Date Analyzed: 11/22/00 03:51

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	33(D)	5.0
95-50-1	1,2-Dichlorobenzene	1.9	0.50
106-46-7	1,4-Dichlorobenzene	4.2	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	24(D)	5.0
156-60-5	trans-1,2-Dichloroethene	1.1	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	1.1	0.50
75-01-4	Vinyl chloride	17	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	48(D)	5.0
541-73-1	1,3-Dichlorobenzene	0.55	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	9.67	97	74--127
Toluene d8	10	9.11	91	80--120
p-Bromofluorobenzene	10	9.08	91	80--120

REPORT COMMENTS: None

Analyst: *[Signature]* Reviewing Supervisor: *[Signature]* /chem/5971A/112100.b/nov212901029.d

EPA METHOD 624

Client: **Envirocon, Inc.**
Sample ID: 1735
Project Info: PROJ. #140101, LRY
Lab ID: 006-00-59961
Matrix: WATER; pH= < 2

Date Reported: 11/28/00
Date Sampled: 11/15/00 00:00
Date Received: 11/18/00
Date Analyzed: 11/22/00 04:29

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION (µg/L)	LIMIT OF QUANTITATION(µg/L)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	1.6	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	44(D)	5.0
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	2.6	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(µg/L)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	9.73	97	74-127
Toluene d8	10	9.07	91	80-120
p-Bromofluorobenzene	10	9.94	99	80-120

REPORT COMMENTS: None

Analyst: Reviewing Supervisor: /chem/5971A.i/va112100.b/nov213001030.d

EPA METHOD 624

Client: Envirocon, Inc.
Sample ID: 1736 89-3
Project Info: PROJ. #140101, LRY
Lab ID: 007-00-59961
Matrix: WATER; pH= < 2

Date Reported: 11/28/00
Date Sampled: 11/15/00 00:00
Date Received: 11/18/00
Date Analyzed: 11/22/00 05:08

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION (µg/L)	LIMIT OF QUANTITATION(µg/L)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	0.76	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	154(D)	5.0
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	1.3	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(µg/L)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
1,2-Dichloroethane d4	10	9.48	95	74--127
Toluene d8	10	9.22	92	80--120
p-Bromofluorobenzene	10	10.3	103	80--120

REPORT COMMENTS: None

Analyst:  Reviewing Supervisor: 

/chem/5971A.i/va112100.b/nov213101031.d

EPA METHOD 624

Client: Envirocon, Inc.

Sample ID: 1737

Project Info: PROJ. #140101, LRY

Lab ID: 008-00-59961

Matrix: WATER; pH= < 2

Date Reported: 11/28/00

Date Sampled: 11/15/00 00:00

Date Received: 11/18/00

Date Analyzed: 11/22/00 05:46

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION	LIMIT OF
		($\mu\text{g/L}$)	QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	0.70	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	140(D)	5.0
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	1.1	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

D= Value was derived from a 10 times dilution.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
1,2-Dichloroethane d4	10	9.34	93	74--127
Toluene d8	10	9.24	92	80--120
p-Bromofluorobenzene	10	10.1	101	80--120

REPORT COMMENTS: None

Analyst: SSReviewing Supervisor: MM

/chem/5971A i/va112100.b/nov213201032.d



EPA METHOD 624

Client: **Envirocon, Inc.**
Sample ID: 1738 *12-2*
Project Info: PROJ. #140101, LRY
Lab ID: 009-00-59961
Matrix: WATER; pH= < 2

Date Reported: 11/28/00
Date Sampled: 11/15/00 00:00
Date Received: 11/18/00
Date Analyzed: 11/22/00 06:24

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	0.54	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	14	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	0.97	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
1,2-Dichloroethane d4	10	9.51	95	74--127
Toluene d8	10	9.15	92	80--120
p-Bromofluorobenzene	10	10.2	102	80--120

REPORT COMMENTS: None

Analyst: 

Reviewing Supervisor: 

/chem/5971A.i/va112100.b/nov213301033.d

EPA METHOD 624

Client: Envirocon, Inc.
Sample ID: 1739 9/4-1
Project Info: PROJ. #140101, LRY
Lab ID: 010-00-59961
Matrix: WATER; pH= < 2

Date Reported: 11/28/00
Date Sampled: 11/16/00 00:00
Date Received: 11/18/00
Date Analyzed: 11/22/00 07:03

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION (µg/L)	LIMIT OF QUANTITATION(µg/L)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	1.3	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(µg/L)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
1,2-Dichloroethane d4	10	9.70	97	74--127
Toluene d8	10	9.23	92	80--120
p-Bromofluorobenzene	10	9.75	98	80--120

REPORT COMMENTS: None

Analyst: SD Reviewing Supervisor: mtj /chem/5971A.i/va112100.b/nov213401034.d



EPA METHOD 624

Client: Envirocon, Inc.
Sample ID: 1740 94-2
Project Info: PROJ. #140101, LRY
Lab ID: 011-00-59961
Matrix: WATER; pH= < 2

Date Reported: 11/28/00
Date Sampled: 11/16/00 00:00
Date Received: 11/18/00
Date Analyzed: 11/22/00 07:41

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION (µg/L)	LIMIT OF QUANTITATION(µg/L)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	(0.23)(J)	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

J= Estimated value. Present, but less than the limit of quantitation.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(µg/L)		PERCENT RECOVERY	ACCEPTANCE RANGE
	ADDED	MEASURED		
1,2-Dichloroethane d4	10	9.51	95	74--127
Toluene d8	10	9.06	91	80--120
p-Bromofluorobenzene	10	10.1	101	80--120

REPORT COMMENTS: None

Analyst:  Reviewing Supervisor: 

/chem/5971A.i/va112100.b/nov213501035.d

EPA METHOD 624

Client: **Envirocon, Inc.**
 Sample ID: 1740
 Project Info: PROJ. #140101, LRY
 Lab ID: 011-00-59961DUP
 Matrix: WATER; pH= < 2

Date Reported: 11/28/00
 Date Sampled: 11/16/00 00:00
 Date Received: 11/18/00
 Date Analyzed: 11/22/00 17:17

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION (µg/L)	LIMIT OF QUANTITATION(µg/L)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	(0.23)(J)	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

J= Estimated value. Present, but less than the limit of quantitation.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(µg/L)		PERCENT	ACCEPTANCE
	ADDED	MEASURED	RECOVERY	RANGE
1,2-Dichloroethane d4	10	9.20	92	74--127
Toluene d8	10	9.12	91	80--120
p-Bromofluorobenzene	10	10.1	101	80--120

REPORT COMMENTS: None

Analyst:  Reviewing Supervisor: 

/chem/5971A.i/va112200.b/nov220801008.d



QUALITY ASSURANCE REPORT FOR EPA METHOD 624: METHOD BLANK

Sample ID: Quality Assurance Method Blank
Matrix: WATER
Extract Method: EPA 5030

Date Reported: 11/28/00
Date Analyzed: 11/22/00 00:39

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT RECOVERY	ACCEPTANCE RANGE
	ADDED	MEASURED		
1,2-Dichloroethane d4	10	9.80	98	74--127
Toluene d8	10	9.08	91	80--120
p-Bromofluorobenzene	10	9.83	98	80--120

REPORT COMMENTS: None

Analyst: SC Reviewing Supervisor: mm

/chem/5971A.i/va112100.b/nov212401024.d

QUALITY ASSURANCE REPORT FOR EPA METHOD 624: METHOD BLANK

Sample ID: Quality Assurance Method Blank
Matrix: WATER
Extract Method: EPA 5030

Date Reported: 11/28/00
Date Analyzed: 11/22/00 15:06

C.A.S. #	TARGET COMPOUNDS	CONCENTRATION ($\mu\text{g/L}$)	LIMIT OF QUANTITATION($\mu\text{g/L}$)
56-23-5	Carbon tetrachloride	ND	0.50
108-90-7	Chlorobenzene	ND	0.50
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.50
107-06-2	1,2-Dichloroethane	ND	0.50
75-35-4	1,1-Dichloroethene	ND	0.50
156-59-2	cis-1,2-Dichloroethene	ND	0.50
156-60-5	trans-1,2-Dichloroethene	ND	0.50
78-87-5	1,2-Dichloropropane	ND	0.50
75-09-2	Methylene chloride	ND	0.50
127-18-4	Tetrachloroethene	ND	0.50
71-55-6	1,1,1-Trichloroethane	ND	0.50
79-00-5	1,1,2-Trichloroethane	ND	0.50
79-01-6	Trichloroethene	ND	0.50
75-01-4	Vinyl chloride	ND	0.50
110-75-8	2-Chloroethylvinyl ether	ND	1.0
75-27-4	Bromodichloromethane	ND	0.50
75-25-2	Bromoform	ND	0.50
124-48-1	Chlorodibromomethane	ND	0.50
67-66-3	Chloroform	ND	0.50
74-83-9	Bromomethane	ND	0.50
75-00-3	Chloroethane	ND	0.50
74-87-3	Chloromethane	ND	0.50
95-49-8	2-Chlorotoluene	ND	0.50
541-73-1	1,3-Dichlorobenzene	ND	0.50
75-71-8	Dichlorodifluoromethane	ND	0.50
75-34-3	1,1-Dichloroethane	ND	0.50
10061-01-5	cis-1,3-Dichloropropene	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	0.50
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50
75-69-4	Trichlorofluoromethane	ND	0.50

ND= Indicates compound was analyzed for but not detected.

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION($\mu\text{g/L}$)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	9.42	94	74--127
Toluene d8	10	9.06	91	80--120
p-Bromofluorobenzene	10	9.94	99	80--120

REPORT COMMENTS: None

Analyst: GS Reviewing Supervisor: mm

/chem/5971A.i/va112200.b/nov220501005a.d



QUALITY ASSURANCE REPORT FOR EPA METHOD 624: REFERENCE STANDARD BLANK MATRIX SPIKE

Sample ID: Quality Assurance Blank Matrix Spike
Matrix: WATER
Extract Method: EPA 5030

Date Reported: 11/28/00
Date Analyzed: 11/21/00 23:23

SPIKE COMPOUNDS	CONCENTRATION(μ g/L)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
Carbon tetrachloride	5.00	5.00	100	60--140
Chlorobenzene	5.00	5.06	101	60--140
1,2-Dichlorobenzene	5.00	4.88	98	60--140
1,4-Dichlorobenzene	5.00	4.95	99	60--140
1,2-Dichloroethane	5.00	5.74	115	60--140
1,1-Dichloroethene	5.00	5.20	104	60--140
cis-1,2-Dichloroethene	5.00	4.92	98	60--140
trans-1,2-Dichloroethene	5.00	5.12	102	60--140
1,2-Dichloropropane	5.00	5.03	101	60--140
Methylene chloride	5.00	5.30	106	60--140
Tetrachloroethene	5.00	4.78	96	60--140
1,1,1-Trichloroethane	5.00	4.59	92	60--140
1,1,2-Trichloroethane	5.00	5.37	107	60--140
Trichloroethene	5.00	4.90	98	60--140
Vinyl chloride	5.00	4.70	94	60--140
2-Chloroethylvinyl ether	5.00	5.40	108	60--140
Bromodichloromethane	5.00	5.13	103	60--140
Bromoform	5.00	5.24	105	60--140
Chlorodibromomethane	5.00	5.32	106	60--140
Chloroform	5.00	4.91	98	60--140
Bromomethane	5.00	4.23	85	60--140
Chloroethane	5.00	5.04	101	60--140
Chloromethane	5.00	4.58	92	60--140
2-Chlorotoluene	5.00	5.01	100	60--140
1,3-Dichlorobenzene	5.00	4.98	100	60--140
Dichlorodifluoromethane	5.00	4.08	82	60--140
1,1-Dichloroethane	5.00	5.23	105	60--140
cis-1,3-Dichloropropene	5.00	5.56	111	60--140
trans-1,3-Dichloropropene	5.00	5.17	103	60--140
1,1,2,2-Tetrachloroethane	5.00	5.10	102	60--140
Trichlorofluoromethane	5.00	4.33	87	60--140

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(μ g/L)		PERCENT	ACCEPTANCE RANGE
	ADDED	MEASURED	RECOVERY	
1,2-Dichloroethane d4	10	10	100	74--127
Toluene d8	10	9.29	93	80--120
p-Bromofluorobenzene	10	9.28	93	80--120

REPORT COMMENTS: None

Analyst: S Reviewing Supervisor: mtj /chem/5971A.i/va112100.b/nov212201022.d

QUALITY ASSURANCE REPORT FOR EPA METHOD 624: SAMPLE MATRIX SPIKES

Laboratory ID: 004-00-59961ms Matrix Spike
Matrix: WATER
Extract Method: EPA 5030

Date Reported: 11/28/00
Date Analyzed: 11/22/00 22:24

SPIKE COMPOUNDS	-----CONCENTRATION(µg/L)-----			PERCENT RECOVERY	ACCEPTANCE RANGE
	ADDED	SAMPLE	SPIKE		
Carbon tetrachloride	5.00	<0.500	4.87	97	60--140
Chlorobenzene	5.00	<0.500	4.90	98	60--140
1,2-Dichlorobenzene	5.00	<0.500	4.46	89	60--140
1,4-Dichlorobenzene	5.00	<0.500	4.80	96	60--140
1,2-Dichloroethane	5.00	<0.500	5.14	103	60--140
1,1-Dichloroethene	5.00	<0.500	4.91	98	60--140
cis-1,2-Dichloroethene	5.00	<0.500	4.84	97	60--140
trans-1,2-Dichloroethene	5.00	<0.500	4.72	94	60--140
1,2-Dichloropropane	5.00	<0.500	4.66	93	60--140
Methylene chloride	5.00	<0.500	4.92	98	60--140
Tetrachloroethene	5.00	<0.500	4.82	96	60--140
1,1,1-Trichloroethane	5.00	<0.500	4.45	89	60--140
1,1,2-Trichloroethane	5.00	<0.500	5.18	104	60--140
Trichloroethene	5.00	<0.500	4.87	97	60--140
Vinyl chloride	5.00	<0.500	3.60	72	60--140
Bromodichloromethane	5.00	<0.500	4.98	80	60--140
Bromoform	5.00	<0.500	5.14	103	60--140
Chlorodibromomethane	5.00	<0.500	5.10	102	60--140
Chloroform	5.00	<0.500	5.14	103	60--140
Bromomethane	5.00	<0.500	3.27	65	60--140
Chloroethane	5.00	<0.500	4.29	86	60--140
Chloromethane	5.00	<0.500	4.04	81	60--140
2-Chlorotoluene	5.00	<0.500	4.70	94	60--140
1,3-Dichlorobenzene	5.00	<0.500	4.68	94	60--140
Dichlorodifluoromethane	5.00	<0.500	3.78	76	60--140
1,1-Dichloroethane	5.00	<0.500	5.05	101	60--140
cis-1,3-Dichloropropene	5.00	<0.500	4.91	98	60--140
trans-1,3-Dichloropropene	5.00	<0.500	4.89	98	60--140
1,1,2,2-Tetrachloroethane	5.00	<0.500	4.81	96	60--140
Trichlorofluoromethane	5.00	<0.500	4.15	83	60--140

Runtime Quality Assurance Report

SYSTEM MONITORING COMPOUNDS	CONCENTRATION(µg/L)		PERCENT RECOVERY	ACCEPTANCE RANGE
	ADDED	MEASURED		
1,2-Dichloroethane d4	10	9.39	94	74--127
Toluene d8	10	9.04	90	80--120
p-Bromofluorobenzene	10	9.32	93	80--120

REPORT COMMENTS: None

Analyst: SE Reviewing Supervisor: MM

/chem/5971A.i/va112200.b/nov221601016.d



Lab Nos.: 001-00-59961 - 011-00-5996

Date: 18-NOV-00

Received by: Bob Reid 11/18/00

Login Date: 20-NOV-00

Logged In by: Krystal McDonald 11/20/00

SAMPLE CONDITION QA/QC REPORT

This report provides information about the condition of the sample(s)
and associated sample custody information on receipt at the laboratory.

Chain of Custody Form

Completed & Signed

Yes Comments: _____

Chain of Custody Seal

Yes Comments: _____

Intact

Yes Comments: _____

Signature Match Chain of Custody vs. Seal

Yes Comments: _____

Temperature Received

10 C. Comments: _____

Samples Received Within Holding Time

Yes Comments: _____

Samples Received in Proper Containers

Yes Comments: _____

Samples Received Properly Preserved(1)

N/A Comments: _____

(1) Acid preservation of samples for volatile organics is not evaluated on this form.

Any preservation problems encountered for these samples are noted on the analytical parameter report pages.

Record of client contact:

Who: _____ By: _____ Date/Time: _____

Method of Shipping: Greyhound 1507366905

Additional comments: _____

[illegible]



December 1, 2000

Envirocon, Inc
Mike McKinsey
P.O. Box 16655
Missoula, MT 59808

Dear Mike,

On November 20, 2000, eleven (11) samples, represented by our laboratory number 001-011-00-59961, were submitted to our laboratory for analysis.

The test results and quality assurance were reviewed and approved by the undersigned.

Reviewed by:

A handwritten signature in black ink, appearing to read "W. J. Pizzini", written over a horizontal line.

B

APPENDIX B

DATA VALIDATION REPORT FOR GROUND WATER ANALYSES

**DATA VALIDATION REPORT FOR GROUND WATER ANALYSES
NOVEMBER 1999, AND MAY & NOVEMBER 2000 SAMPLING EVENTS**

1.0 INTRODUCTION

Ground water analytical data validation levels have been established in accordance with criteria described in Appendix 1.A, Volume V of the Final Remedial Investigation Report (Envirocon, 1994). Data validation levels and codes for the Livingston Rail Yard project are based on the U.S. Environmental Protection Agency Region VIII guidance, "Evaluation Criteria for Existing Data From CERCLA Study Areas," Revision 1, January 5, 1985. Table 1.0 lists samples collected during the December 1998 and May 1999 sampling rounds.

Table 1.0
November 1999 and May & November 2000 Ground Water Samples

Sample Number	Sample Location	Sample Date	Analyses
140101-1685	89-4	11/8/99	601
140101-1686	89-4 duplicate	11/8/99	601
140101-1687	92-2	11/8/99	601
140101-1688	90-3	11/9/99	601
140101-1689	92-1	11/9/99	601
140101-1690	89-9	11/9/99	601
140101-1691	94-2	11/9/99	601
140101-1692	L-87-2	11/10/99	601, NAP
140101-1693	L-87-7	11/10/99	NAP
140101-1694	L-88-13	11/10/99	NAP
140101-1695	L-88-10	11/10/99	601, NAP
140101-1696	92-3	11/10/99	NAP
140101-1697	L-87-8	11/11/99	601, NAP
140101-1698	94-1	11/11/99	601
140101-1699	89-3	11/11/99	601
140101-1700	Trip Blank	5/16/00	601
140101-1701	89-2	5/16/00	601
140101-1702	L-87-3	5/16/00	601
140101-1703	89-4	5/16/00	601
140101-1704	89-6	5/16/00	601
140101-1705	89-10	5/16/00	601
140101-1706	L-88-10	5/16/00	601
140101-1707	LS-11	5/17/00	601
140101-1708	90-3	5/17/00	601
140101-1709	94-2	5/17/00	601
140101-1710	92-2	5/17/00	601
140101-1711	94-1	5/18/00	601
140101-1712	89-9	5/18/00	601
140101-1713	L-87-2	5/18/00	601
140101-1714	89-3	5/19/00	601
140101-1715	89-3 duplicate	5/19/00	601
140101-1716	L-88-10 duplicate	5/23/00	601
140101-1717	L-88-13	5/23/00	601
140101-1718	L-88-13 duplicate	5/23/00	601
140101-1719	L-87-7	5/24/00	601
140101-1720	L-87-4	5/24/00	601
140101-1721	1	5/24/00	601
140101-1722	2	5/24/00	601
140101-1723	3	5/24/00	601
140101-1724	4	5/24/00	601
140101-1725	5	5/24/00	601
140101-1726	6	5/24/00	601
140101-1727	B Street	5/25/00	524.2
140101-1728	92-1	5/25/00	601
140101-1729	92-1 duplicate	5/25/00	601
140101-1730	89-4	11/14/00	601
140101-1731	92-1	11/14/00	601
140101-1732	L-88-10	11/14/00	601
140101-1733	Travel blank	11/14/00	601
140101-1734	L-87-2	11/14/00	601
140101-1735	89-9	11/15/00	601
140101-1736	89-3	11/15/00	601
140101-1737	89-3 duplicate	11/15/00	601
140101-1738	92-2	11/15/00	601
140101-1739	94-1	11/16/00	601
140101-1740	94-2	11/16/00	601

2.0 Evaluation of Blank Analyses

Laboratory and field blanks were analyzed for these sampling rounds as summarized on Table 2.0. All the field blanks were trip blanks, whereas all the laboratory blanks were reagent or method blanks.

Table 2.0
Field and Laboratory Blanks

<u>Sample Number</u>	<u>Sample Type</u>	<u>Laboratory ID #</u>	<u>Sample Date</u>	<u>EPA Method</u>
N/A	Reagent Blank	N/A	11/19/99	624 (601)
N/A	Reagent Blank	N/A	11/20/99	624
N/A	Reagent Blank	N/A	11/21/99	624
140101-1700	Trip Blank	001-00-53981	5/16/00	624 (601)
N/A	Method Blank	N/A	5/30/00	624
N/A	Method Blank	N/A	5/30/00	624
N/A	Method Blank	N/A	6/5/00	624
N/A	Method Blank	N/A	6/7/00	624
N/A	Method Blank	N/A	6/7/00	624
N/A	Method Blank	N/A	6/8/00	524.2
N/A	Method Blank	N/A	11/22/00	624 (601)
N/A	Method Blank	N/A	11/22/00	624
140101-1740	Trip Blank	004-00-59961	11/14/00	601

No compounds were detected in any trip blanks or in any laboratory reagent or method blanks. Surrogate recoveries were within acceptable QC limits. Therefore, no changes to the validation levels of primary samples are necessary due to blank analyses.

3.0 Evaluation of Duplicate Analyses

Six sets of field duplicates and one set of laboratory duplicates were analyzed during the November 1999, May 2000, and November 2000 sampling rounds. Table 3.0 summarizes the sample numbers and dates of the duplicate samples.

Table 3.0
Duplicate Sample Analyses

<u>Sample Number</u>	<u>Sample Location</u>	<u>Sample Type</u>	<u>Laboratory ID #</u>	<u>Sample Date</u>	<u>EPA Method</u>
140101-1685	89-4	Primary Sample	001-99-58824	11/8/99	624 (601)
140101-1686	89-4	Field Duplicate	002-99-58824	11/8/99	624
140101-1697	L-87-8	Lab Duplicate	99-58930-1	11/12-17/99	(NAPs)
140101-1692-1696	(5 locations)	Lab Duplicate	99-58930-2-6	11/11-12/99	(NAPs)
140101-1714	89-3	Primary Sample	015-00-53981	5/19/00	624
140101-1715	89-3	Field Duplicate	016-00-53981	5/19/00	624
140101-1706	L-87-10	Primary Sample	007-00-53981	5/16/00	624
140101-1716	L-87-10	Field Duplicate	001-00-54160	5/23/00	624
140101-1717	L-87-13	Primary Sample	002-00-54160	5/23/00	624
140101-1718	L-87-13	Field Duplicate	003-00-54160	5/23/00	624
140101-1728	92-1	Primary Sample	012-00-54160	5/25/00	624
140101-1729	92-1	Field Duplicate	013-00-54160	5/25/00	624
140101-1736	89-3	Primary Sample	007-00-59961	11/15/00	624
140101-1737	89-3	Field Duplicate	008-00-59961	11/15/00	624
140101-1740	94-2	Lab Duplicate	011-00-59961	11/16/00	624 (601)

The following duplicate pair analytes exceeded a relative percent difference of 30%:

- Chlorobenzene in Sample No. -1706 (well L-87-10), and
- Trichloroethene in Sample No. -1714 (well 89-3).

Therefore, these two analytes will be validated as “qualitative” for their respective sample pair; all other analytes remain “quantitative” with respect to duplicate analyses.

4.0 EVALUATION OF HOLDING TIMES

All of the samples analyzed by EPA Methods 601 and 524.2 were preserved by being acidified to pH values below 2.0. Properly preserved samples for analysis by EPA Methods 601/624 and 524.2 can be stored for up to 14 days prior to analysis. A review of all holding times revealed that one of these samples exceeded the 14-day holding period for VOCs (Sample No. -1721) by one day. Analytes for this sample will be downgraded to qualitative status. In addition, the ferrous iron holding time of 24-hours was exceeded for Sample Nos. -1692 through -1697. This analyte will be downgraded to qualitative status for these six samples.

5.0 EVALUATION OF MATRIX, BLANK, AND SURROGATE SPIKE RESULTS

All matrix spike, blank spike, and surrogate spike recoveries were within acceptable limits except for a single sample matrix spike recovery (Dichlorodifluoromethane) in Sample No. -1711. This analyte will be downgraded to “qualitative” status for this sample.

Matrix spike, blank spike, and surrogate spike quality control sample results are provided in Appendix A of this report.

6.0 MISCELLANEOUS QA/QC EVALUATIONS

(None)

7.0 VALIDATION LEVEL ASSIGNMENTS

All analytical results for the November 1999, May 2000, and November 2000 sampling rounds are acceptable as quantitative data (code ‘B’), except those listed on Table 4.0, which have been downgraded to qualitative status (code ‘A’).

TABLE 4
Analytical Results Degraded to Qualitative Status

<u>Sample Location</u>	<u>Sample Date</u>	<u>Sample Number</u>	<u>Chemical Name</u>	<u>Conc.</u>	<u>Validation Qualifier</u>	<u>Reason</u>
L-87-10	5/16/00	-1706	chlorobenzene	1.4 ug/l	A	dupl. RPD
89-3	5/19/00	-1714	TCE	1.4 ug/l	A	dupl. RPD
MW 1	5/24/00	-1721	all 601 analytes	ND	A	holding time
L-87-2	11/10/99	-1692	ferrous iron	1.63 mg/l	A	holding time
L-87-7	11/10/99	-1693	ferrous iron	0.14 mg/l	A	holding time
L-88-13	11/10/99	-1694	ferrous iron	<0.03mg/l	A	holding time
L-88-10	11/10/99	-1695	ferrous iron	<0.03 mg/l	A	holding time
92-3	11/10/99	-1696	ferrous iron	<0.03mg/l	A	holding time
L-87-8	11/11/99	-1697	ferrous iron	1.90 mg/l	A	holding time
94-1	5/18/00	-1711	difluorodichloromethane	ND	A	matrix spike recovery out-of-range

